SCIENCE FICTION

JANUARY 1973 • 75¢ 14155

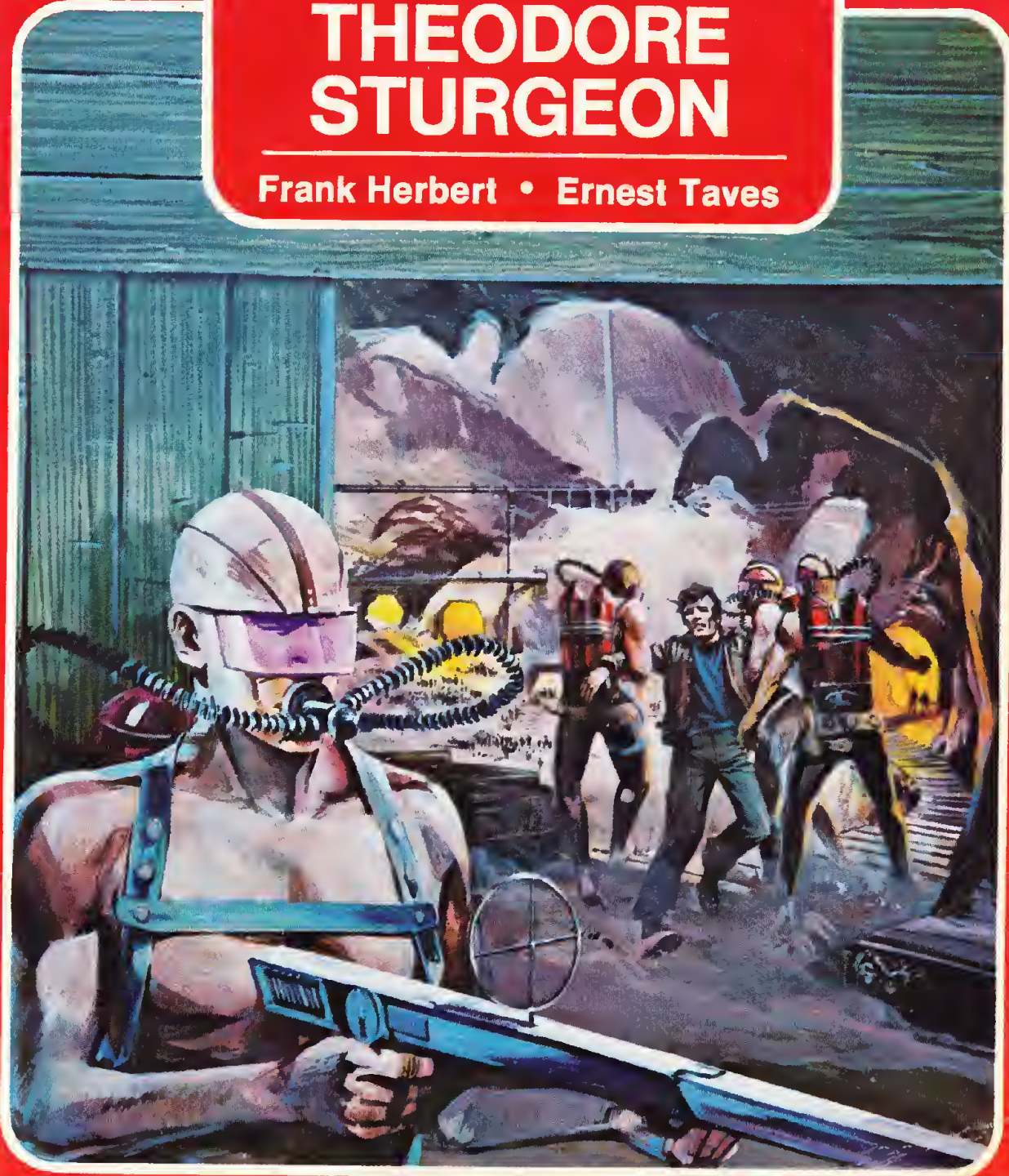
Galaxy

MAGAZINE

CASE AND THE DREAMER
gripping new novella by

THEODORE STURGEON

Frank Herbert • Ernest Taves



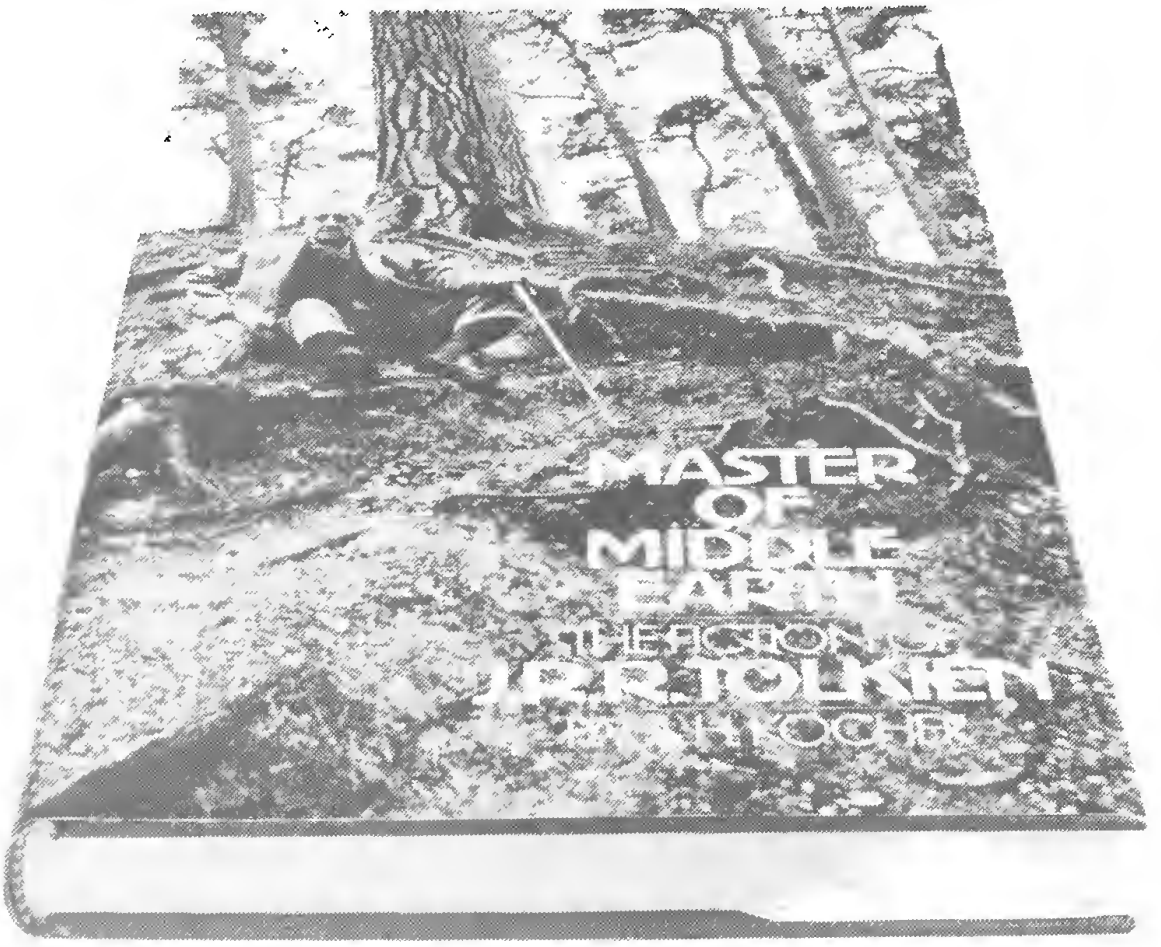
Galaxy

Sturgeon • Taves • Herbert • Wolfe • Gordon • Richardson

JANUARY 1973

14155

From the U.S. publisher of J.R.R. Tolkien comes new insight on the MASTER OF MIDDLE-EARTH



No student of the master's works can afford to be without this new book

FIRST REVIEWS

"Another book on Tolkien? Yes, and this one, which analyzes *The Lord of the Rings* in light of Tolkien's other published writings, is a winner...The book impels the reader to return and reread Tolkien with new insight."
—Library Journal

"I know of no other single volume which provides so full a picture of Tolkien's theory and practice of fantasy."—RICHARD C. WEST

"Should provide a valuable guide to the enjoyment of the eminent British author's writings. . . . for Tolkien's fans perhaps the most revealing part of the book is Kocher's discussion of 'Leaf by Niggle,' a story which parallels Tolkien's own life."
—Publishers Weekly

MASTER OF MIDDLE-EARTH

The Fiction of J. R. R. Tolkien **by PAUL H. KOCHER**

At all bookstores • $5.95 • HOUGHTON MIFFLIN COMPANY

COLLECT STAR TREK!
COLLECT DOC SAVAGE!

Two of the greatest science fiction series going!

STAR TREK

_____SPOCK MUST DIE!
A STAR TREK NOVEL (5515 • 60¢)
_____STAR TREK (5629 • 60¢)
_____STAR TREK II (5559 • 60¢)
_____STAR TREK III (5761 • 60¢)
_____STAR TREK IV (7009 • 75¢)
_____STAR TREK V (7300 • 75¢)
_____STAR TREK VI (7364 • 75¢)
_____STAR TREK VII (7480 • 75¢)
_____STAR TREK VIII (7550 • 75¢)

DOC SAVAGE Just 75¢ each!

After many years, now back in print!
_____MAN OF BRONZE #1 (7519)
_____THOUSAND HEADED MAN #2 (7520)
_____METEOR MENACE #3 (7521)
_____POLAR TREASURE #4 (7522)
_____BRAND OF THE WEREWOLF #5 (7523)
_____THE LOST OASIS #6 (7524)

Just Recently Published!
_____THE GREEN DEATH #65 (6725)
_____MAD MESA #66 (6912)
_____THE FRECKLED SHARK #67 (6923)
_____QUEST OF THE SPIDER #68 (6992)
_____MYSTERY OF THE SNOW #69 (7035)
_____SPOOK HOLE #70 (7144)

_____**DOC SAVAGE—FULL COLOR POSTER—$2.00**

When you order you'll receive our complete catalog listing all Doc Savage titles available plus our great Science Fiction line-up of Asimov, Bradbury, Serling and many, many others!

HAVE YOU READ THESE? If not, order them today!

_____THE EXORCIST by William Peter Blatty (7200 • $1.75)

_____THE METHUSELAH ENZYME by Fred Mustard Stewart (6532 • $1.50)

Send check or money order (no currency or C.O.D.'s please) to:

BANTAM BOOKS INC., Dept. G, 666 Fifth Avenue, New York, N.Y. 10019

I HAVE ENCLOSED $_____(which includes 25¢ for postage & handling)

Mr./Mrs./Miss _____

Address _____

City _____

State/Zip _____

(Please Print)

ALL STORIES NEW
January-February 1973
Vol. 33, No. 4

Galaxy SCIENCE FICTION

MAGAZINE



Arnold E. Abramson, *Publisher*
Ejler Jakobsson, *Editor*
Judy-Lynn Benjamin, *Managing Editor*
L. C. Murphy, *Subscription Director*
Theodore Sturgeon, *Contributing Editor*
Lester del Rey, *Feature Editor*
Jay Tunick, *Circulation Director*
William Lazar, *Fulfillment Manager*

NOVELLA
CASE AND THE DREAMER, Theodore Sturgeon 8

NOVELETTE
MAYFLOWER THREE, Ernest Taves 46

SERIAL (Part II)
PROJECT 40, Frank Herbert 88

SHORT STORIES
LA BEFANA, Gene Wolfe 72
REFLEX, T. J. Gordon 154

SCIENCE FACT
IS THE STAR OF BETHLEHEM OBSERVABLE TODAY?, Robert S. Richardson 77

FEATURES
DIRECTIONS 4
GALAXY STARS 169
GALAXY BOOKSHELF, Theodore Sturgeon 170

Cover by Brian Boyle, suggested by PROJECT 40

GALAXY Magazine is published bimonthly by UPD Publishing Corporation, a subsidiary of Universal Publishing & Distributing Corporation. Arnold E. Abramson, President. Main Offices: 235 East 45 Street, New York, N.Y. 10017. Single copy: 75¢. 12-issue subscription: $9.00, in U.S., $10.00 elsewhere.

GALAXY Magazine is published in the United Kingdom by Universal-Tandem Publishing Company, Ltd., 14 Gloucester Road, London SW7 4RD. Arnold E. Abramson, Chairman of the Board. Ralph Stokes, Managing Director. Single copy: 25p. 12-issue subscription in the United Kingdom: £3.60.

Copyright © 1973 by UPD Publishing Corporation under International, Universal and Pan-American Copyright Conventions. All rights reserved. Second class postage paid at New York, N.Y. and additional mailing offices. The publishers assume no responsibility for unsolicited material. All stories printed in this magazine are fiction and any similarity between characters and actual persons is coincidental. Printed in U.S.A.

DAW BOOKS

DONALD WOLLHEIM'S SELECTIONS FOR SCIENCE FICTION READERS

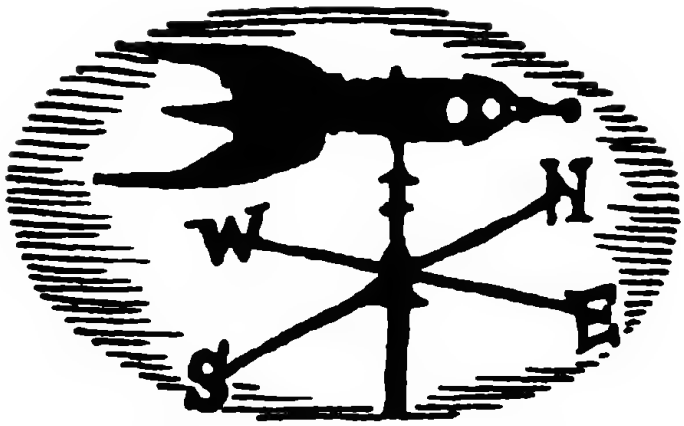
featuring:
Joseph Green
Thomas Burnett Swann
Andre Norton **Gordon R. Dickson**
Lloyd Biggle, Jr. **Jeff Sutton** Keith Laumer
John Brunner Brian Stableford
James H. Schmitz **Michael G. Coney**
Philip K. Dick John Jakes **Louis Trimble**
Marion Zimmer Bradley
Ron Goulart **A. E. Van Vogt** Gerard Klein
Lin Carter **Brian N. Ball** E. C. Tubb
Dean R. Koontz
etc. etc.
etc.

THE ONLY ALL-SCIENCE FICTION PAPERBACK PUBLISHER
4 TITLES A MONTH

NEVER BEFORE IN PAPERBACK!

DAW BOOKS, INC.
Donald A. Wollheim, Publisher
1301 Avenue of the Americas
New York, N.Y. 10019

Distributed by
NAL
TIMES MIRROR



DIRECTIONS

735B Hudson Hall
U. of Mo.
Columbia, Mo. 65201

Directions:

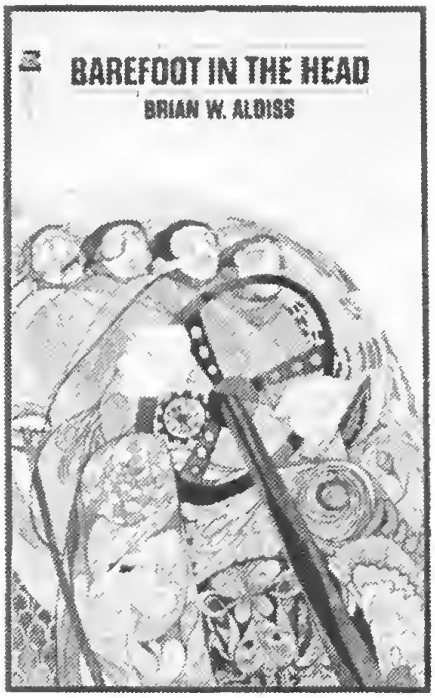
In an article in the May, 1970 issue of The Writer *Harry Harrison suggested that deep characterization isn't needed in science fiction: "There is little or no character development because the characters are there to illuminate the concept. The story is concept-oriented, not person-oriented." This idea is an old one, dating from the pulps, none of which were noted for their depth of characterization, and is inherent in the plot and style of much sf. But I reject the assumption that science fiction must remain in this rut, that it may deal only in scientific extrapolation and leave the exploration of interpersonal relationships to the mainstream. The qualification limits the potential greatness of sf.*

Harrison, apparently to prove his point, goes on to ask, "Can you remember the name of a character in any science fiction story or novel you have read recently? Now try this with Gone With The Wind *or* Crime And Punishment, *or any other general novel that you recall with warmth."*

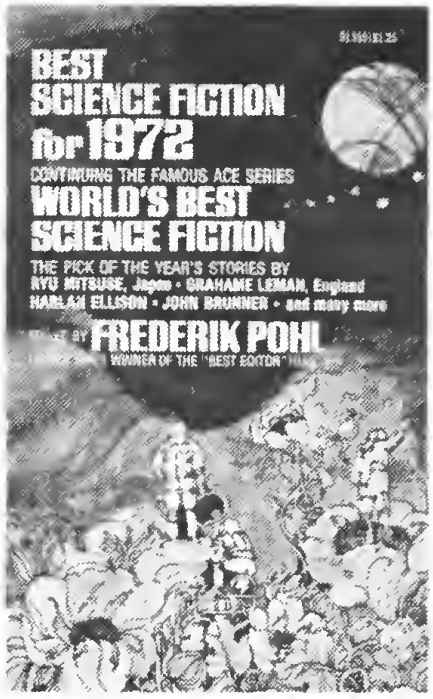
I tried this and found that I could remember Helva and Lessa from Ann McCaffrey's books The Ship Who Sang *and* Dragonrider, *Michael Valentine Smith and Jubal from* Stranger In A Strange Land, *Mahasamatman from Zelazny's* Lord Of Light, *and several others. This isn't very many, but* Gone With The Wind *and other famous novels are unfair comparisons. What science fiction characters have the publicity or are referred to as much in conversation or in print as the characters in, say, a novel by Dickens, Steinbeck, or Faulkner? Or have had a four-hour movie to imprint the names of characters upon the minds of viewers?*

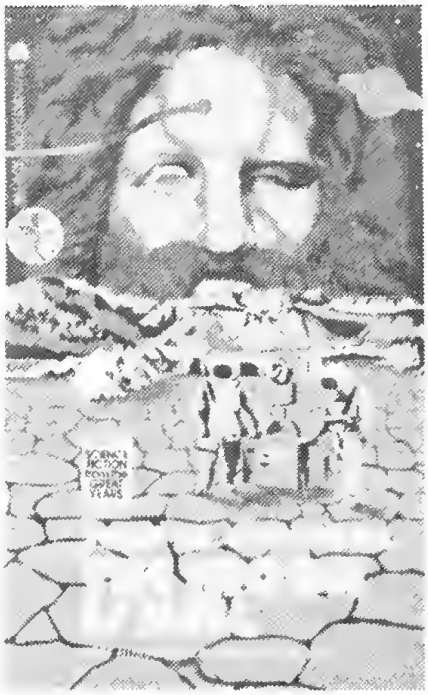
But why shouldn't sf have the quality and depth of characterization that mainstream fiction does? Why shouldn't we have our share of Hamlets, Captain Ahabs, Micawbers, and Holden Caulfields? Why shouldn't we have more? We have the potential. The mainstream is stuck with interpersonal relations in the "real" world. Science fiction is not so limited. We can explore such relations at the far end of the universe. We can study man not only as he is but as he can be. Science isn't content to study the way things are—it must see what they can do.

In the end the two are the same—and so it is that Man must be what he becomes. The future is constantly in a state of becoming the present. Because science fiction has the potential to explore this process of becoming it could be a truer gauge of human personality than the mainstream. Unfortunately, this has yet to happen.

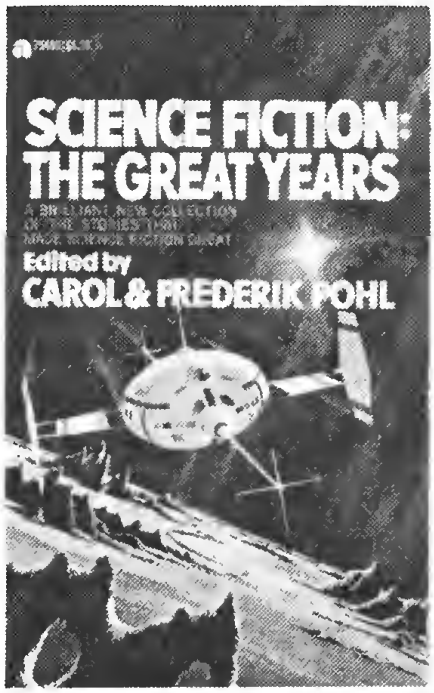


ace books 1972





ace books 1973



AGE OF MIRACLES—John Brunner
TOMORROW LIES IN AMBUSH—Bob Shaw
THE SKY IS FALLING/BADGE OF INFAMY—Lester del Rey
LOOKING BACKWARD—Mack Reynolds
GENDER GENOCIDE—Edmund Cooper
ORBITSVILLE—Bob Shaw

ace books A Division of Charter Communications Inc.
1120 Ave. of the Americas New York, N.Y. 10036

Because sf writers must work so much harder than other writers at creating their backgrounds, most have thought that if they could write a fast-moving plot with a believable background they would have done their job.

I'm asking for something more. My concept of a science fiction story demands that neither idea nor characterization reigns supreme. Both are equal in value.

One basic element in sf writing is the concept, the idea or happening outside the range of present human experience—the other is the separate personalities *who live through the idea element and the individual reactions of these characters to the concept. The sf story is the interface between the two.*

Such a story would be harder to write, true. Perhaps I'm asking the impossible—but I don't think so. I hope not. Ideally such a story would be enormously superior to any mainstream work. It would combine brilliant and insightful characterization with the ideas we read science fiction for—the ideas that release us from the bounds of Earth and space and time and propel us to any corner of the world of Imagination.

Richard Stooker
Columbia, Missouri

Directions:

It has been my feeling that science fiction—good science fiction of the past—explored man's future and how his follies would affect his planet. And that as more people have begun to look toward the future—instead of simply living each day through—a good many have come to realize that science fiction is not merely escapist literature but an avenue to speculation, criticism and even to sounding warnings. The compelling reasons have been the invention of nuclear weapons, growing pollution and other environmental damage and increasing social friction and unrest. Too, our waxing dependence on science and technology virtually demand that we no longer confine ourselves to surviving today—or there may not be a tomorrow.

For this reason I believe that the legitimate role of science fiction has moved from the far future into the near—from time-distant adventures into problems of the present. Science fiction now is about Now.

This movement closer to home from the deep ends of space belongs largely to the generation born in the late fifties—after the space operas' heyday. These people today can read science fiction without fear of being laughed at. They can look for and hope to find answers to such questions as—where are we today?

Some call this the new awareness and it doesn't mean merely that people are troubled. It also means that they want more than a world of metal and concrete and by keeping our informed options open—that living sense of wonder—science fiction can hold out a promise.

Gerald Thompson
Chicago Heights, Illinois

Directions:

In the recent, almost faddish, trend toward relevance—or at least pertinence—I fear the juggernaut of utilitarianism is overtaking art. The straightforward pleasure of entertainment

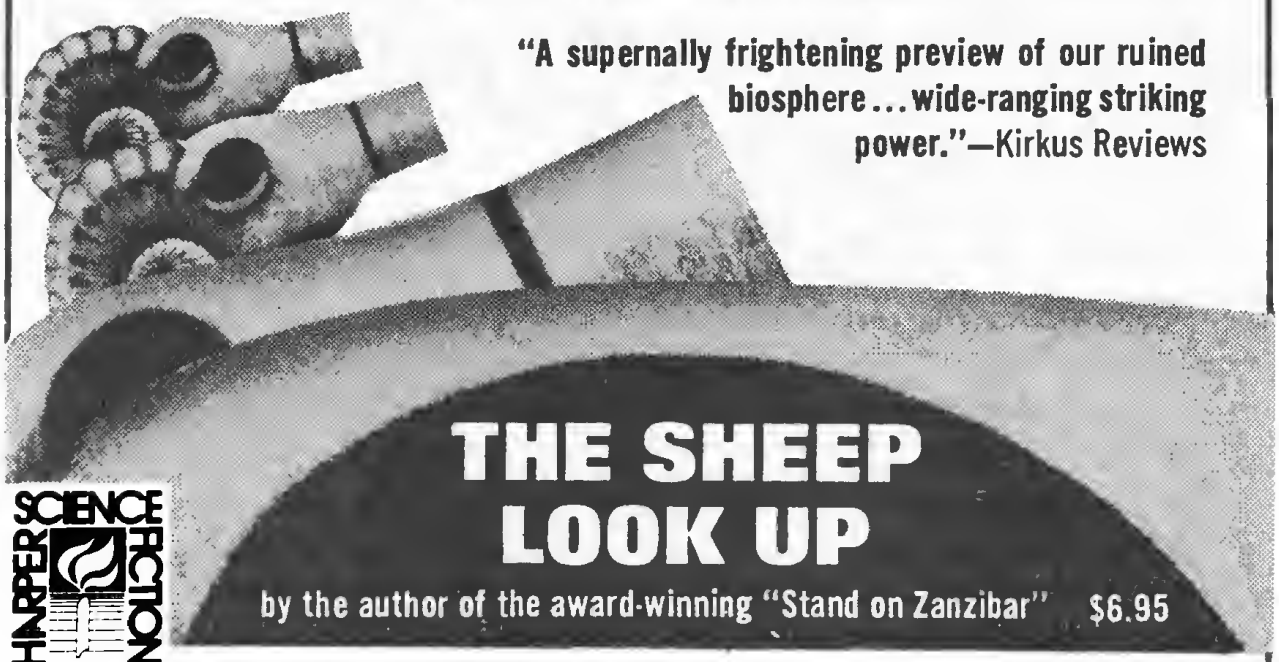
(Please turn to page 175)

JOHN BRUNNER'S angry novel of the near-future, combining the prophecy of "1984" and the shock of "A Clockwork Orange"

"A work of art... the best Brunner novel I've yet read."—James Blish

"He has taken a giant step forward and placed himself firmly in the front ranks of today's science fiction writers."—Robert Bloch

"A supernally frightening preview of our ruined biosphere... wide-ranging striking power."—Kirkus Reviews



THE SHEEP LOOK UP

by the author of the award-winning "Stand on Zanzibar" $6.95

HARPER SCIENCE FICTION

THE MOLECULE MEN

By Sir Fred Hoyle and Geoffrey Hoyle. Two short novels about strange visitors to Earth. "Quite as good as anything the Hoyles have done." —Library Journal $5.95

NEBULA AWARD STORIES SEVEN

Edited by Lloyd Biggle, Jr. All the award-winning stories and runners-up of 1971, plus essays by Knight, Sturgeon and Anderson on the progress and status of S-F during the last year. $6.95

REPORT ON PLANET THREE

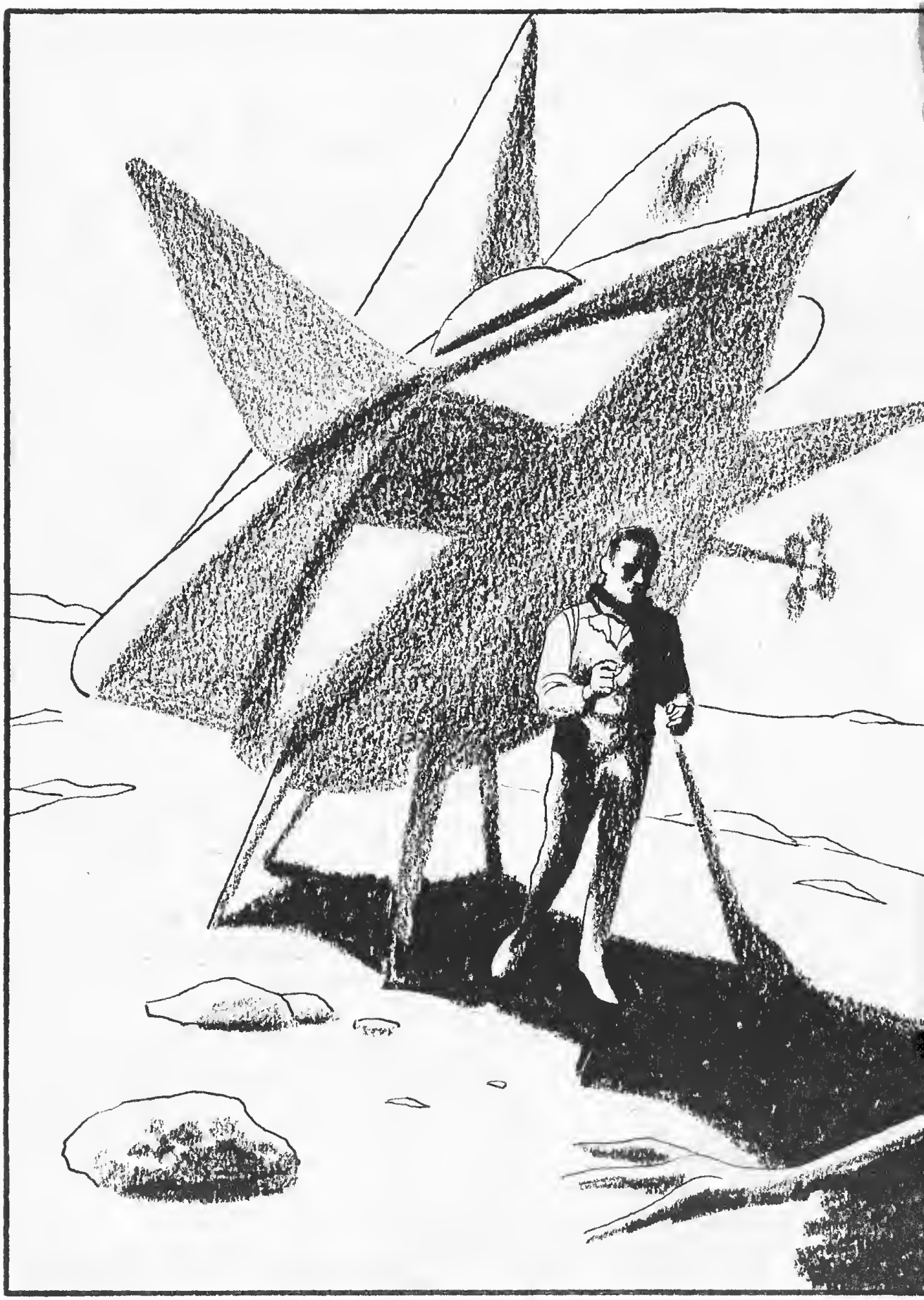
By Arthur C. Clarke. Provocative speculations on space, earth, technology, the frontiers of science, the future of man. $6.95

A DAY IN THE LIFE

Edited by Gardner Dozois. Stories by Delany, Knight, Lafferty, Leiber, Roberts, Silverberg, Cordwainer Smith, and Zelazny in "one of the finest collections available."—James Sallis $6.95

Harper & Row
10 E. 53rd St., New York 10022
1817

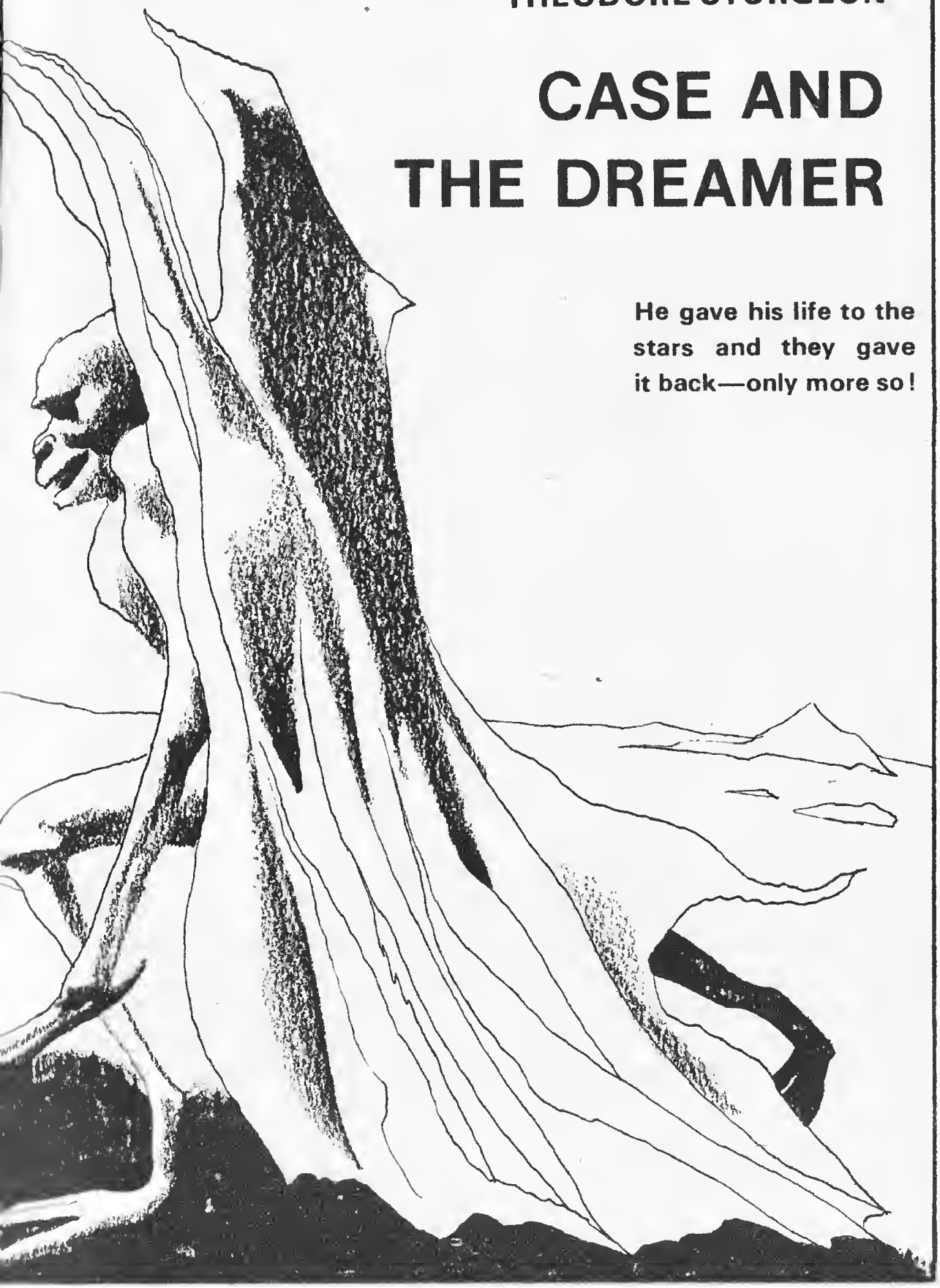
At bookstores



THEODORE STURGEON

CASE AND THE DREAMER

He gave his life to the stars and they gave it back—only more so!



IF, at the very moment Case died, you had aimed a laser (a tight one) at the spot from Earth—and if you could have ridden the beam front for a thousand years (impossible, of course) you might have seen his coffin.

It had not been meant to be a coffin. Ships have lifeboats when they fail and the boats have lifebelts in case they fail and the coffin had once answered the last purpose—but now and for all those centuries it was and had been Case's coffin.

It lay in lightlessness, its wide-spectrum shrieks of distress forever stilled. It tumbled ever so slowly, pressed by light long gone, because it had never been told to stop.

Case, aged a thousand and some hundred and perhaps a couple of dozen and a fraction (do the dead grow older?) years, lay in the sealed cylinder. He was dressed in inboard fatigues (which long ago—even in Case's long ago—had evolved into practically nothing) consisting of barely enough material to carry the brassard identifying him as a Senior Grade Lieutenant and displaying the convoluted symbol of his service branch. EX^n, it read, once you got past the art. Ex- on many levels: exploration, extrasolar, extragalactic, extratemporal and more—plus the possibility matrix: expatriate, ex-serviceman, ex-officio, exit. For upon entering X^n no man made plans for himself—not if they involved any here and now. Or anyone.

An invisible, intangible something brushed the coffin just once (once was enough) and there then appeared something utterly outside Case's experience in all the exploration, all the discovery, all the adventure in his conscious life. It was a stroboscopic flicker which, more swiftly than the eye could comprehend or the brain register, became with each pulse a structure twice as large as it had been before, until it reached a point hardly ten meters away from the tumbling coffin and stopped, glowing. There was no deceleration in this approach, for there was no motion as motion is understood. With each pulsation the craft—for it was indeed a ship—eased to exist *here* and reappeared *there*. The distance between *here* and *there* was controllable and could vary widely. This had to be so, for during the last three pulses—during which its approach to the coffin was meters, a meter, some centimeters—its size barely altered.

A brief pause. Then a disk no larger than a saucer spun out from the seamless hull of the vessel, hovered for a moment near the slowly tumbling coffin, fell back and around to match its rotation. It placed itself near one end of the coffin and emitted a squirt of flame—and another. The tumbling slowed and, with a third impulse, stopped.

Another pause, while emanations from the ship probed, bathed, searched, touched, tested, checked

and rechecked. Then on the flawless hull appeared lines tracing out a rectangle. Inside the rectangle the hull appeared to dissolve. The tiny saucer moved behind the coffin, made its meticulous squirt and the coffin moved precisely through the intersection of imaginary diagonals athwart the doorway.

Inside, four columns of pale orange light sprang up from the deck, supporting and guiding the coffin until it was fully contained, whereupon the rectangular opening hazed over, darkened, became solid seamless hull again. With a brief shrill hiss atmospheric pressure appeared, equalizing the outside of the coffin's shell with whatever was inside. Then the four orange beams turned the coffin and moved it toward a spot on the forward bulkhead which irised open to a corridor, a tall oval in cross-section, glowing with sourceless, shadowless blue-white light. Again a doorway shut behind the coffin and it was moved smoothly and silently to an open door near the far end of the corridor. Here the beams checked the coffin, turned it and slid it into a room. It came to rest in a space between two banks of equipment. On the left was a control panel of some complex kind. It carried no switches or knobs, but had instead arrays of small disks floating two handbreaths away from the panels. Each glowed with its own hue and intensity. On the right stood a great bank of indicators. Case (if he had been alive) would have found the calibrations and indicators incomprehensible.

THERE appeared on a walkway—which presently surrounded the coffin—a blue man, hooded and gloved, whose body dazzled without being excessively bright, who seemed to be not quite transparent, yet not solid—who seemed in some way out of focus. At no time did he touch anything with his small hands and he moved without a stride—he seemed to glide or slide from place to place.

He stood for a time with his hands behind him and his hooded head bent, regarding the coffin. He then turned to the control bank. Deftly he activated a half-dozen systems by passing his hand between the face of the console and certain pertinent floating disks, each of which lit up. A gate at the front of the room opened and two metal arms, bearing a glowing semicircle of energy, moved the length of the coffin, down and back. The field of the curved bus bar rendered the top half of the coffin transparent. The arms retracted, the gate closed. The blue man made his swift touchless passes at the console and the various glowing, floating disks faded to dark.

The blue man placed his hands behind his back and stood for a long time regarding the body inside the coffin—the (compared with his own) overlong arms and legs, the

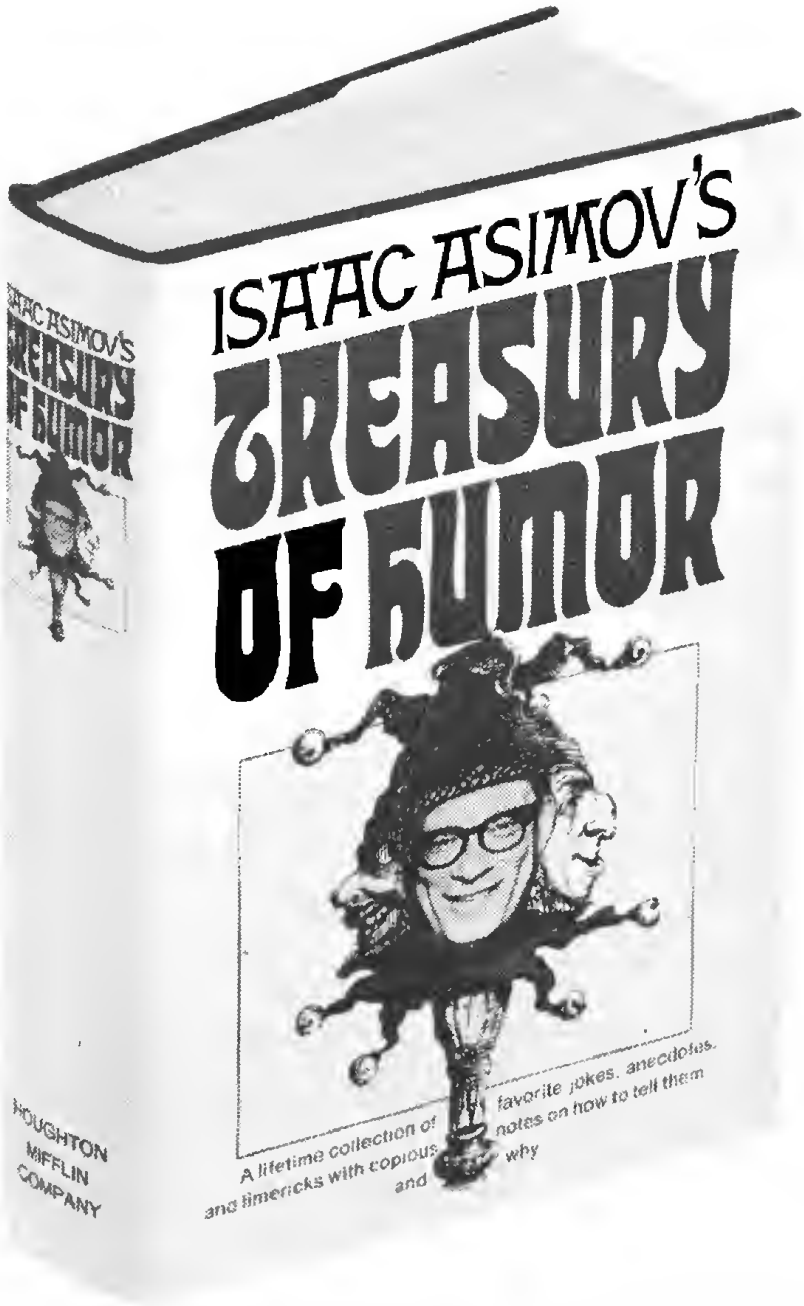
hint of bony ridges over the corpse's eyes, the heavy pectoral muscles and the flat stomach. After a time he glided around to the other side of the coffin and inspected that view—the hollow needles still embedded in the antecubitals, the bronze-colored, tonsure-shaped helmet clamped to the head, the thick hair that tumbled around its edges. For a long time, astonished, he gazed at Case's beard, his flag of defiance, which, in the last days of his life, he had allowed to grow far past the limits imposed by X^n.

The blue man returned to the controls and set up a complex sequence. Again the gate at the front of the room opened. A new device trundled out and approached the coffin. It looked like a multiple projector studded with gimbaled lenses and the housings of small and highly diverse field generators, together with a positioning frame and sets of folded, tool-bearing arms. The telescopic legs arched, straddled the coffin and positioned the projector over it. Urged by the sure, fleet hands of the blue man, the projector came alive with threadlike beams, some visible and brilliant—blue, gold, scarlet—some invisible but faintly shrill in the thin atmosphere the room had assumed to match the pressure inside the coffin. The beams apparently were probes and stimulators, pressors and tractors, gauges and analyzers, samplers and matchers and testers.

Without pause they reached their summations and took further action. Mechanical hands searched and solved the seals. Gases were mixed and injected, while the atmosphere in the chamber was matched in quality and kind and pressure (a process which had no effect whatever on the blue man). The seals were cracked and the coffin was opened. While the body remained where it was the open coffin sank away, to and through the deck. Case's corpse seemed to be floating in midair, though it was not. Gravity had not yet been applied, but the body was held from drifting or shifting by tractor beams while the crouching machine tapped the tubes from the needles in Case's arms, replacing their contents. The same process was used on the small bronze helmet. A diathermic field adjusted the body's temperature, through and through and all at once. Tubed needles snaked out to the groin, the abdominal cavity, the sides of the neck. Warm fluids began coursing through them while pressor beams gently manipulated the joints, the muscles, the chest.

. . .and suddenly Case sat up. But you can't sit up afloat in midair, supported by intangible columns of force and entangled by needle-pointed tubes, electrodes, probes. Even so, his movement was so sudden and so violent that the swift reflexes of the blue man, the built-in fail-safes of the systems, could not prevent his wild angry flailing and his tortured shout: "Jan!" But that

Still the perfect book for holiday giving



Isaac's lifetime collection of favorite jokes, anecdotes, and limericks with copious notes on how to tell them —and why

"FEW writers can handle words as can this accomplished author of science fiction, science fact, and now humor. Asimov, a noted scientist, demonstrates in this work that he has not only a sense of humor, but also an analytical mind concerning the essence of humor. The title conveys the content of the book, and nothing more needs to be said except that Asimov would be one popular guest to have at a party. However, since he will not be readily available, the next best thing is to take his book along."—*Library Journal*

At all bookstores • $7.95

HOUGHTON MIFFLIN COMPANY

2 Park Street, Boston, Mass. 02107

was as far as he got before the massive tranquilizer hit his brain and he relaxed, sleeping.

Two tubes were gently replaced.

A broken hollow needle was extracted and another put in.

And a sleeping man is not a dead man. *Let him sleep,* said the master computer and the blue man dissolved away. The lights dimmed and Case slept.

"JAN!"

Case's waking cry was tortured and hoarse—but it had not been like the syllable that had torn his throat and half his mind and mingled with the continuing crash of his chemical jets on that terrible launch, the last before he died. The lifebelts—the coffins—had rested side by side on the escarpment where he and Jan had dragged them barely ahead of capture by the—by the—(a thought missing here: occluded, forgotten) and—and . . .

. . .and his craft had launched—hers had not.

No one, no man anywhere, had been as helpless, as furious as Case. Programing the escape belts had been so simple that failure had taken on an implacable quality, a constancy of misfortune. Case himself had set up the sequences—he himself had taken the irrevocable precaution of locking them in, of tying his command controls to hers, of canceling any possible override.

And his craft had launched and hers had not, had not, had not . . .

Jan!

CASE slept on in the dimness, apparently free-floating, actually caged by gentle, unbreakable beams. After enough hours (the master computer knew exactly the meaning of "enough") the sourceless light increased. The figure of the blue man appeared within it and gained its almost-density. Moving to the console, the blue man activated certain of the telltales on the opposite bulkhead and studied them. Apparently satisfied, he turned back, made a number of careful adjustments and passed his hand behind a master-switch disk.

A deep hum began, grew in intensity until checked by the blue man's intangible hand. The sound began to rise in pitch, fell again, rose and steadied. It began to pulsate: eleven, fourteen, sixteen cycles—eighteen—and there it held. It was joined by a series of matching tones, high harmonics, multiples, tones set apart by fractions to set up beat frequencies. These in turn orchestrated to the heavy subsonics. The entire structure of sound continued self-adjusting to itself and to the readouts connected through Case's bronze helmet, until at last the whole living sonority was tailored exactly to him, to the emanations of his brain, the doorways of his mind, the subtle temporal cells, the

neurons and synapses of his brain.

Case was no longer asleep.

Something began to press against the integument of his mind, gently, irresistibly, until it dissolved the wall and entered. It sought out those storage cells as yet unoccupied, meticulously respecting treasures and privacies, looking into nothing, asking only space to lay down new learning. Once this was found, it withdrew, leaving (remember: all is figure) a line into each compartment.

New knowledge and new ideation flowed swiftly through these lines. Language. Idiom. The ideological, analogical, mythological underbracing of idiom. Case was given everything a colleague and contemporary of the blue man might be expected to have, except knowledge of himself and his current situation. That he would get in his own way, in his own time—the ultimate courtesy.

The hypnotic sound faded. The lights changed slightly. The blue man put his hands behind his back and waited.

Case awoke.

II

THERE is no end to the wonders of the universe and no acrobatics of the human imagination through time and space are needed to find them. A twentieth century man could, if he would, spend half a lifetime in learning all learned about a square foot of topsoil, six inches deep. He would find animals and insects with marvelous abilities, able to speak languages of scent as well as sound; whole generations of aggression and defense; funguses capable of weaving nooses quick and strong enough to snap around a salamander, ingenious enough to wrap and digest it. On the microphysical level are the endlessly subtle phenomena or solution and suspension, of freeze and thaw, while the living things encapsulate and encyst and metamorphose—no end of wonders.

Consider the female cattle tick. Hatching in the ground, she sheds and grows and sheds and grows some more, finally sheds and mates. At last, carrying within her the encapsulated sperm, she climbs. Eyeless, she is yet guided to climb upward until she finds a limb tip where she clings until her reflexes are fired by a single, special spark—the odor of butyric acid, which is found in the sweat of warm-blooded mammals. At that she leaps—and if she misses she will climb patiently again and find another tip and hang there, waiting. She has been known to hang there for eighteen years—and yet react instantly and fully in the presence of the one thing she is equipped to take and designed to need. She will feed for a day, whereupon she releases the sperm she has hoarded to the eggs she carries. She falls then and dies. And the fertilized

eggs are ready to take up the cycle.

Her life, then, is composed of instants and episodes (as is yours) and could you communicate with her she might recall episodes—the second shedding, the mating, the climb, the leap. The wait, through drought, freeze, windstorm—why, that was another instant, another moment, for during that wait she could be called alive only by nearly misusing the word. It was another instant and less memorable than that first plunge into warm blood.

Case's first awakening, then, was but an instant after that terrible launch (for he could, but would not remember the long despair during which he gave himself to the belt's life-support, life-suspension systems). He might have foregone these through grief and fury had not his own emergency programing been as implacable and unforgiving as that he had laid on the belts—unconscious, automatic, indelible.

(But hers didn't launch, didn't launch.)

Therefore Case awoke (the first time) but an instant after that terrible wrench—therefore his hoarse cry. Therefore he was the only human being in all the universe who could remember so distant an event as the escape from that hellish unknown planet—and to him it was not distant at all. For such is the nature of time that a man's clock and a man's soul might give him true measurements, but the truths need not be the same. If you are to understand Case you must understand this.

So it was that he knew time had passed when he awoke the second time—he knew he had been asleep. He knew he felt well and rested and that he was hungry and thirsty. He did not know where he was and when he tried to sit up he could not.

"Lie still," said the blue man. "Don't try to move while I get those needles out of you."

CASE'S first disobedient reflex was to move, fast and hard. When he again found he couldn't he saw the sense of resting and relaxed. The blue man made quick, sure passes at the console and a piece of equipment glided out of the bulkhead somewhere beyond Case's head. It came to him, extended glittering gentle arms and tools and drew the tubes, applied cool creams, released, untied, removed the various devices which had given him back his life, while Case lay wondering what language the blue man had spoken—and how it was that he could understand it.

The equipment slid away from him and traveled to its gate in the forward bulkhead, which swallowed it. Case lay still, looking up at the blue man, whose hooded, concealed face could tell him nothing, but whose relaxed, hands-behind-back pose was one of watchful waiting. Mysterious, yes. Menacing, no.

Case moved tentatively, found no restraints, sat up. He sat on nothing

visible and, looking down, found himself apparently afloat a meter above the deck. He had a second of vertigo. It passed as the blue man, with instant understanding, waved at a control. Case was immediately supported and surrounded by a soft, firm chair which faded in around him. He sat up straight, looked at the chair arms, around at the back and then at the blue man, whose calming gesture was commanding enough to cause him to lean back—watchful of course, but no longer alarmed.

"Lieutenant Hardin—"

Case blinked. It was so long, even as he knew time, since he had heard that name that he had all but forgotten it was his.

"I'm usually called Case," he said. "And who are you?"

A pause, then the blue man (faceless, but with a smile in his voice) said, "There really is no simple answer to that question. Just call me the Doctor for the time being.

"Doctor?" The word meant the right thing as Case said it, but felt unfamiliar to his tongue and throat. "Doctor," he said again in his own (old) language. The sound felt better but he could sense it meant nothing to the blue man.

"That's right," said the Doctor, "you've learned a new language—new to you, ancient to me."

The idea of hypnogogia—sleep-learning—was not unfamiliar to Case, though he had never experienced anything as—well—as finished as this. Learning and using information by hypnogogia had always been an instant translation (or rapid analog) process to him—think *cat* and come out with *gleep*, or whatever the appropriate word was in the learned system. In this case, he was even thinking in the new language. Yet if he wished to use his old one he could do so merely by decision and without special effort. All gain, no loss.

Case closed his eyes. Did his new language have words for grief, anger and self-detestation? Yes, it did. Gratitude? *Saved my life* . . . There is this about dying anguished—the anguish dies with you, as does the pain. What, then, if you are revived—and with you, the anguish? This was what mattered at the moment, not a stupid: *Where am I?* He was on a ship that had picked him up. Whose ship, bound for where? That mattered, too, but not yet. Gratitude?

THERE were a million questions to ask and nine hundred thousand of them conflicted with his conditioning to give no information unless he must—and on certain matters, no information at all.

"You were the executive officer on the X^n ship *Outbound,*" said the Doctor, "an Explorer class discovery vessel launched from Terra Central on a mission to penetrate the galactic arm and make certain

experiments in space, among them the testing of a new version of the flicker-field mode of faster-than-light travel. A design error caused the vessel to accelerate out of control to velocities exceeding anything regarded at the time as theoretically possible. Compounding the *Outbound* disaster was the ship's ability to gather intergalactic hydrogen molecules for fuel, which, at the unexpected velocities, caused an increment exceeding expenditure of fuel. The only possible result must have been an explosion or other disruption of the vessel. What actually happened is not known, because by the time it happened the ship was far outside any possibility of detection."

Case felt a flash of irritation. "If you've already picked all this out of my head—why go over it?"

Gently the Doctor said, "We took nothing from you. We respect personal integrity above all other things, and the privacy of a man's choices are his own. No—what I have just said came from the archives."

Archives. Not files or retrieval banks—archives.

"How long were we—was the *Outbound* lost?"

"By Terra Central reckoning—some twelve hundred years."

"I couldn't have been suspended for twelve hundred years!"

"You weren't. You died." After a time the Doctor said, "Would you like to be by yourself?"

"If you don't mind," Case whispered.

The blue man faded and disappeared. Case saw this, but could only stare dully.

JAN. *Oh, Jan . . .*

His mind for a while was a wordless throb. Deep in him, where lived the observer all of us carry—the merciless one who stands off watching—was name-calling: *Idiot! Sentimental slob! Why is it a greater grief to you to know she is a thousand years dead than a mere two hundred? Angry, are you? Angry! What are you going to do with your anger?*

"Something," he whispered. "Something—"

He threw a slitted glance around. He saw nothing in this bland place to strike out against, so with one blow he fisted his palm so hard he numbed it—and while waiting for it to begin to ache he caught in memory a flash of ugly laughter. Ugly? The sound was disembodied, mouthless, deep, cheerful—with the cheerfulness of a being with a better mousetrap and Case had been the mouse. Why couldn't he remember the mouth, the face, the situation?

Occlusion—the profound will not to remember. Occlusion is an act of survival, an unwillingness of the mind to replay some terrible shock. Yet occlusion always does leave a trigger in plain sight and that is also a survival trait—for the deep mind

wants always to know where the danger is and what to fear. To be as close to his deep mind as Case was (his training had made him so) was to tread always the edge of internal terrors, to be placed always at the point of decision. *Shall I recall the trauma? Or bury the trigger again?* Only at this edge did he have the ability to react with the fabled swiftness of the X^n Corps.

He let the trigger, his memory of the laugh, fade and closed his eyes, commanding some alternative to come to mind. Anything. Anything else, anything instead. Something, perhaps, before the laughter.

Something like—well, before the laughter was the chase and before that the landing and before that the lifeboat and before that . . . Before that no one would ever know, because the crew had abandoned ship in the flickering grayness of translight velocity, under or over, who knew? No instrumentation existed to tell precisely what had happened—and no instruments told the truth anyway. Electrons had flowed in strange ways, coils and fields had been distorted and wild. No one had ever been there before—no probe had ever reported back. Scuttlebutt, off-duty talk—what would happen to you if you bailed out of a ship at faster-than-light velocities? They said that as you reach such speeds, time approaches zero and mass approaches infinity. As logic approaches perfection, truth approaches zero. Someone said C (the terminal velocity) was a gateway into another universe or into another phase in phased space. Some predicted death and dissolution, for all electrical phenomena of biochemistry would, by all the rules of physics, be so changed that organization of matter and of life would be disrupted. And some said no: transformation phenomena (mass into energy into space into time, each proportionately interchangeable) might retain *pattern*—and some inconceivably different form of life might be possible. Over it all was the certainty that to bail out, away from the guarding life-support, artificial gravity and all the other tissues of the man-made womb that was a spaceship, would be expulsion into something utterly strange and hostile. Bailing out in the stratosphere, with 95% of the atmosphere underneath one, and a temperature drop of perhaps two hundred degrees—the name of that is Lethal. Multiply it by what, then, in space, in that strange country where time itself might turn on its tail?

And always the other argument that velocity really is not a commanding factor—that early in the days of railroading, wise men said that the ears would bleed, the sight would fail, the blood cease to circulate at twenty miles an hour. And that all the talk of C was the same logical untruth—speed has no absolute, velocity is always relative and the only danger in bailing out is

the matter of being a hell of a way from anywhere.

Well, Case had found out (with Jan, with Jan) that one could live through a bailout. Not how—or what had actually happened. He remembered the shrill alarm, the echoing-everywhere voice saying abandon, the clutch of fear on the way to his assigned lifeboat station when the main hull started to buckle and the airtight barrier slammed down between him and his boat (and a good thing too; that whole section of the ship cracked away and exploded outward, boats and all). The lights had gone, as had the gravity. Surprisingly clear in his mind was the wild scramble through familiar-unfamiliar gates and corridors to his alternate station, where he tumbled through the hatch (on top of someone else—he didn't know who) and kicked out and squirmed around, treading the other as he craned back to the corridor to see if anyone else was coming—but then, no one could see. If anyone had been or had not been coming, his conscience was clear (though his regret could never be), for the automatic override had canceled his manual launch controls and he had fallen back into the lifeboat as it clanged shut and banged away from the ship. The boat's inertia field had taken over and saved him the terrible agony of acceleration, but its vibratory effect, chiming down the scale, had been an agony of its own. His shipmate had been as preoccupied with this as he and the only thing he could clearly recall was a spinning glimpse of the ship with a ragged cavity in its midsection—the first part to blow off, the part that had contained his lifeboat station—limned in flickering arcs as the ruptured power cables lashed and vomited.

III

PROBABLY they were both unconscious for a time. Case's subsequent hazy inspection of the instruments gave him no useful information at all, except that the lifeboat was sound and that its converter was picking up a reasonable amount of usable atomic hydrogen, so that fuel and life-support would not be a problem. Almost detachedly he watched his hands on the controls, running through the implanted checklist, setting the computer to hunt for a ship and/or a terrestrial planet, putting the drive to maximum (the computer would not use maximum, but in that setting max was available) and turning on the life-support complex—with alarms. A touch on one control took inventory of all stores and reported them complete. Another applied spin. The lifeboat had the contours of a shark with an exaggerated dorsal fin. The body contained stores, converters, fuel—the fin was instrumentation and

living quarters for six. Spin was on the long axis—subjective "down" was therefore in the tip of the fin.

All snug, all safe.

No hope.

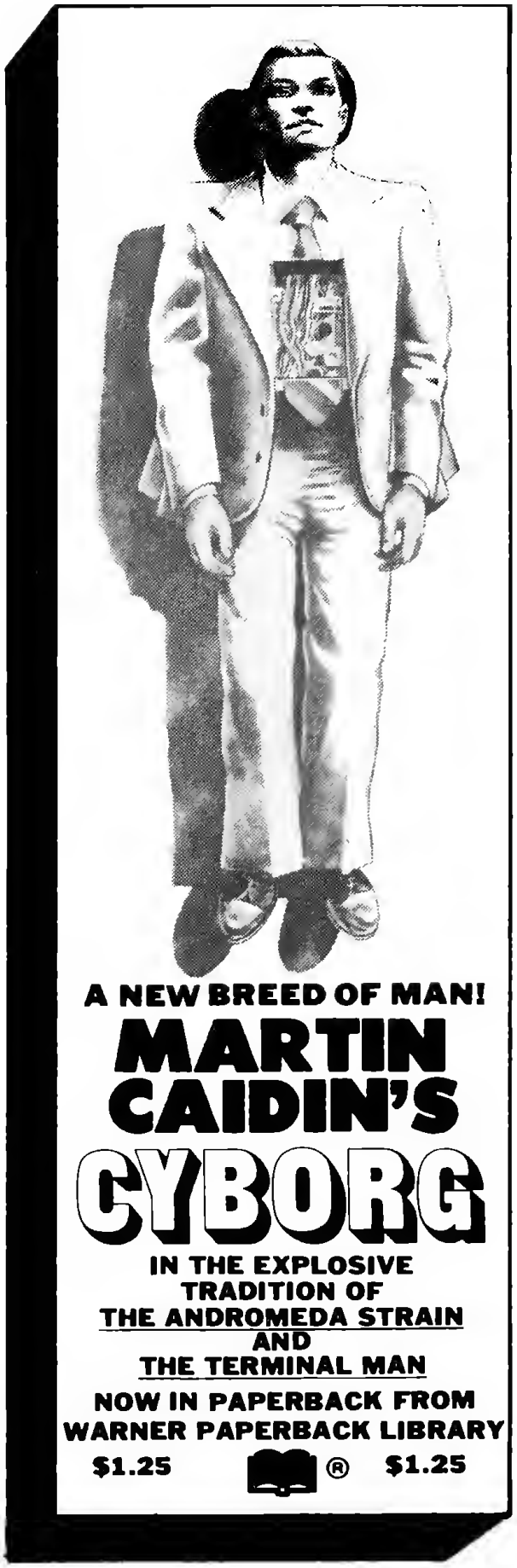
Plenty of room, plenty of food and air for six. For two the accommodations were palatial.

He looked at last at his shipmate—not that he hadn't cared before, but his ingrained priorities were conditions first, personnel second.

His first reaction had to do with all the people his fellow traveler was not. He wasn't Old Growl, the captain, or that funny little Henny from the black gang, or Bowker, who had always puzzled him and whom he had always wanted to know better when he could get around to it—or Mary Dee, who had never found out that he had liked her better walking away, such was her hair, such was her face. The face he now saw was one of the background pieces, one of the others, you know, the people who make up the bulk of the roster in your memory of some function or event or institution you attended once. Gander, Dancer, something like that. Janssen. XBC, xenobiochemist, usually found in a corner with two or three others from Science Section, talking shop. Correction. Listening to other people talking shop.

"Janifer?"

"Janocek." She sat with an elbow hooked around a soft stanchion,



where she had anchored herself before spin. She had apparently been watching the checkout intently, following it step by step. Case outranked her—and her conditioning would make her defer to him but not miss any of the routine. Clearly, at this moment, they both felt the weight of the programing leave them. Optimum conditioning takes care of essentials down to the finest detail, true, but then it stops. They were on their own.

"Case Hardin, Lieutenant S.G.," he said.

"Yes, sir, I know." There was a foolish pause. He should have known she knew. There were more ratings than officers on a ship. To the ratings the officers were never a sea of faces. And his "S.G." hung pompously in the air between them. Her eyes were long almonds, so bright they were opaque (but, one realized, not from the inside) and her hair was drawn back almost painfully tight from a seamless brow. She was slender, tall (both just this side of "too") and there was an odd, controlled quality in her voice, as if it were kept in the middle register by a conscious effort. She asked, "What happened?"

He shrugged and nodded at the telltales. No ship, no boats, no planet, no sun anywhere. Some debris of the disaster dwindled as their launch took them away—nothing large enough to have saved or sheltered anyone or the computer would have reported it. As the lifeboat spun, a paleness washed across the screens—the end of the arm of a distant galaxy. Case touched a control and fixed a view of it. "Nobody tells the ratings anything," she observed.

"They don't tell a lieutenant much either. We were testing a new drive. Theoretically it wouldn't work in gravitic fields of a certain density, so we headed for deep space with a conventional drive. We were okay by the numbers. The math section gave us a safety factor of three or better—I mean, we were three times farther into intergalactic space than was needed to test safely. Well—they were wrong—or the design was wrong or somebody did something wrong on the bridge. We cut in the new drive and couldn't turn it off. Nothing could turn it off. It was working outside our power supply, beyond control. We just accelerated until we broke up."

"And there's no one—"

"No one. Just us."

THEY found themselves looking at one another. He wondered what was happening behind the shine of those long eyes? Were they asking, *Why you?* Or was she mourning someone? For a second he had a deep flash of regret. He did not gossip, did not pry, never watched other people's affections and partnerings and personal peccadillos. Case had a searching and hungry mind, but it was pointed at

the job, the responsibility, the mission, and accepted a deliberate repression of his own wants. He was a good officer. Whether or not he was known as a good man had never concerned him. And perhaps it did not have to concern him now. He was half the population—and the ranking half at that. She had no one else to set standards and comparisons by and from the looks of things matters would so continue. He sighed (why?) and turned away from her. He found nothing to recollect about her. He would have to start knowing her from scratch, from this point forward, while she—well, she knew who he was. In his world one was used to living in close quarters with other people—there were so many of them everywhere. But because there were so many there was always a choice. But now. . .

He turned to the console and sat down. He stared glumly at the faint stain of stardust that was a galaxy—who knew which one?—and the blackness everywhere else. Hopelessly he set up a computation for distances. Was it eight hundred light-years—or even nine—to that nearest star? Something like that, surely. The boat could accelerate to a fraction of C—a large fraction, to be sure, but still a fraction—and the suspension gear might keep two humans alive for a minimum of two, a maximum of five hundred years.

The boat was equipped to care for six—could the life-suspension systems be manifolded, so that they could revive and use new gear before the old was played out? Would the unused systems remain effective after great lengths of time?

He glanced over his shoulder. His biochemist might have some answers. But first—some numbers.

Expertly he flicked his computer commands. In scanning a galactic cloud even at eight hundred light-years the computer could only operate in an area of probability to lay a course to a point in the cloud where terrestrial planets were most likely to be—and terrestrial planets are not *likely* to be anywhere. He set the computer to seeking and turned away from it. He had at last done whatever he could, a condition he dreaded. Nothing was now left for him but to face a whole matrix of things he had never concerned himself with or trained himself for. He had been trained to confront problems, not people, not a person—not, for that matter, himself. He turned to confront it, her, himself, and found her crying.

She said, "We're going to die, aren't we?"

Everything about her—body, voice and eyes—asked only a simple answer, a denial, and he didn't have it for her. He never thought of lying (that was for those who knew more about people than he knew) and it never occurred to him to touch her, which would have served quite well, for she could have made her own interpretation.

He said, "I guess so, Janifer—" and even got her name wrong.

"DOCTOR."

The sourceless light increased and the blue man appeared.

"I'm hungry," Case said.

"In the chair," said the Doctor. "Are you feeling better?"

Case knew what the Doctor knew from the wide array of telltales—and that it was not his physical condition that was the subject of the query. But "better?"

He said, "You mean—am I up to remembering? I'll try. After the ship broke up I escaped in a lifeboat with a rating, a Janet Janocek, xenomicrobiologist—" The wide soft arm of the chair slitted open and uncovered a warm one-liter sucker. Case took it, pulled strongly at it and swallowed. The contents were bland but satisfying. He continued: "I can't remember what happened after we realized we were beyond help, out of range, with no reason to hope."

"You were picked up in a lifebelt—you called it a coffin. What happened to the lifeboat?"

"Oh, that was smashed up on the landing."

The Doctor did not comment, but waited. Case said, "I mean, I can't remember what we did all those days, a hundred and four of them—" What he meant was that he wanted to remember them in order, every hour and minute, because now they were precious, priceless, and because now he could not understand why, except for certain vivid scenes, they had been at the time a succession of grays on grays to be lived through. He had been with Jan—Jan. Whatever she was later, she did not become—she was what she had been that one time when he had watched her cry, had sat watching her, his useless hands pressed between his knees, miserably, until she stopped. Then the days—ship's time had said they were days—and you can sleep just so much and spend so much time in the tingler (had she used everything in the tingler? He had. Oh, Jan!). He had checked the console daily and entered "Ditto" in the log. And then there had been nothing else to do but confront the other person and he just hadn't known how!

And all the while, he thought with a kind of awe, *this other person was Jan.*

Thus it is when anguish and grief loop back on themselves. He wished he had it to do over, terror and hopelessness and all—a small price for those hundred and four days, now that he knew who she was. Had been.

"I remember," said Case, almost smiling, "Jan's starting a discussion with me about living, about staying alive—about *why*. Why did we keep a log and check the console and do the active and passive exercises and use the tingler and all—why, when we knew we were going to die? And all I could say was, what's changed?

What was the difference, really, between what we were doing and what we had always done? We knew where we were going to die—right in that lifeboat—when the time came, but otherwise we were just like everyone else, everywhere, trying to stay alive as long as possible. I knew she hadn't wanted to die a hundred days ago and I knew she didn't want to die that minute—and neither did I. But why live now? She demanded an answer to that—it was just something she didn't know. And I said that I didn't know either, but that everyone ever born has been under a death sentence just for having been born—and the fact that for us there was no hope did not change anything. Hope makes life easier but its lack doesn't make life impossible—millions upon millions have lived long lives without it. And this discussion was (suddenly he remembered) on the hundred and second day—and the hooter started up." At last Case did smile.

"The hooter."

"Collision alarm, for condition yellow. Somehow out there we were coming up on something—or something was coming up on us. It was enormous. It shouldn't have appeared as it did, so close and without previous warning. But it did. And don't ask me for explanations. It was a planet larger than Luna and almost as large as Terra. I shouldn't have said 'planet' because there was no primary, but you'll understand why I call it that.

"I thought Jan would cry again. Maybe she did. I was busy at the console. "I probed for an atmosphere—the object was big enough. Negative. I got it on the screen and read the range and I couldn't believe it. To have appeared so quickly it had to be approaching from ahead, adding velocities—but even then it should have been detected days before. Actually it wasn't coming head-on—it was angling in from the left. I computed the angle—the object was only two hundred and fifty thousand kilometers away and intersection was due in about thirty hours. I got magnification on the screen—a rocky spheroid, but by radar alone I couldn't tell much more than that."

(And Jan had said, "Please—oh, please—" and when he had turned to look at her she had been standing with her hands over her ears. "Please turn off the hooter, Case.")

CASE did not explain to the Doctor why he smiled again. "I needed light to make any kind of survey, but out there was nothing, not even starlight. I remember thinking again that a body that size would have to have some sort of atmosphere, if only hydrogen falling in or orbital dust, so I probed again and got a positive."

"Your instruments—" said the Doctor.

"My instruments were wrong,"

interrupted Case, "or I used them wrong—or a lot of things happened I can't explain. All I can do is to tell you what happened."

Detecting Case's irritation, the Doctor raised small shimmering hands. "Please."

"Or what I can remember," mumbled Case. "Maybe they're not the same thing."

He took another pull on the sucker, swallowed and said, "I set up the spectros for analysis and that's one thing I won't ever forget—the readout for Earth Normal. It said oh point nine and then it waited and threw in another nine and after a bit, three more—five nines altogether. That's mean temperature and pressure as well as composition—and I doubt Terra itself would give you a reading like that. Something about the way those nines came up is important, but I can't quite get my hand on what it is—I don't know." He shifted, picked up the sucker, put it down again. "I got some sleep then—six hours—leaving Jan on watch with orders to wake me and take her six. We didn't know what we were in for and we wanted to be rested.

"When she woke me we had light. The planet, planetoid, whatever—it gave us light. It looked like those old photographs of Venus when she was first observed, before the cloud cover was dispersed. The radar pix were the same as before, nearer now, but the opticals showed unbroken clouds. The velocities were so nearly matched that I could trust the iron mike to hang an orbit. I took a running check on the nature of that light. It was white, more or less—a mix. It came from the clouds.

"We slid into orbit nice as you please and dropped in close enough so the spin was an embarrassment. I set the boat into a tail-in attitude with the big fin leading—and a steady one-G deceleration, which made it comfortable for us and easier on the sensors.

"You can't expect full and sophisticated instrumentation and controls on a lifeboat, but what we had was good and I used it to the limit. We had all the time we needed and the velocities were so well matched that the transition from orbital to controlled flight situations was made as gently and pleasantly as any textbook tourboat ever managed. I lost the red-alert feeling, canceled the six-on, six-off watches and spent most of my waking time on the scans. Jan said she would make a report about the way I handled it."

(Jan had watched everything he did—of course, it was such a change from those other weeks—and had jumped to do anything he asked her for. And one day she had said suddenly, "Case, you're wonderful, you know that? And nobody knows but me. I've got to tell them, somehow I've got to tell them." This had disturbed him

far more than any unbelievable planetoid. He had nodded to her and turned back to his console, glad he had something else to fix on. After that she had spent a lot of her off-watch time murmuring into a voicewriter.)

"I set a spiral so gradual and so matched to the atmosphere densities that frictional heating was not a problem, only useful. We braked with it and used the heat for hydrogen treatment—actually, I do believe we landed with full tanks because of that, not that it did us any good. We reoriented, nose parallel, and hung on the horizon, fin up and the living quarters gimbaled over so that for us and the boat there was up and down again. We circled the planetoid in the high stratosphere—or what would have been a stratosphere on Terra—and mapped.

"Once into the cloud cover we found that it was just that—a cover. The air underneath was clear, with occasional drifting cumulus. The weirdest thing of all, though, was that from the underside the cover was illuminated only on one half. Imagine a hollow sphere, half black and half white. Call the white the illuminated part. The planetoid is inside this sphere and the sphere rotates around it, so that even without a primary, the surface has day and night phases.

"I picked a number of likely spots and finally selected one. It was a long narrow sandy plain, like a beach, at the edge of a large lake, with forest—yes, there was vegetation—on the other side. It seemed fairly level and we could land on it with clearance to get off again. I ran a full check on the manuals, then took over. I made fourteen, fifteen trial approaches before I lowered the gear and went in.

"YOU have to understand—the lifeboat was no kind of airfoil. She came in on what we called stilts—the supporting jets—and maintained attitude with gyros. I was practically sitting on the stilts at ten meters altitude and I had forward velocity down to about fifteen meters per second. A crawl. And then there was this terrible noise and we fell over sideways."

(A tearing scream, edged, stabbing and Jan's screaming with it and—and his too—to be falling, to know in that split second that the boat was gone, that hope, born again, was gone again. And as they toppled had come that other sound, that other terrible sound that made them scream again when terror overrode despair . . .)

"It was a small lifeboat, but small is—" Case spread his hands. "There were tons of it all the same. It fell over and I could hear the hull plates crumpling and turning back. I think the two left-side stilts, fore and aft, cut out and the two right ones added to the topple. She lay

down on her side and slid and ruined herself. And when the fin levered over and hit the sand we were thrown so hard we hit the bulkhead, restraints and all—they pulled right out. They were never built for such a lurch from the side as that.

"It was night, that crazy kind of night, when I came out of it. I was lying on the sand with my head on Jan's lap and she was wiping my face with something cold."

(And breathing in used-up little *hics*, dry catches at the long far end of weeping. She had been thrown clear, right out through a rupture in the fin, and in time had found him dangling against the outside of the boat by his restraints, his blood painting the bent plates. She had gotten him down somehow and then had gone off to the beach with a bit of foam insulation she dipped in the water and brought back. When he had gotten his wits about him he had given her hell for maybe inoculating him with God knows what from alien water. Her response, astonishingly, had been to fall instantly asleep.)

"I hurt all down my left side, especially the skull and hip, both scraped badly and bruised. Jan was shaken up and for two days or so I was afraid of internal injuries because she vomited a lot and moaned in her sleep. Then I guess we both got sick for a while—fever and blurred vision. It's asking a lot of the biosystem to be thrust unprotected into an alien environment, even a kindly one."

(Kindly. Cool at night, warm in the daytime, clean air, on the high side of oxygenation. Potable water. It could have been worse—if that had been all there was to it. There had been more to it.)

"It was at the end of the third day, as nearly as I can recall, that we shook off the sickness and were able to take a good look at the situation. We were bruised and hungry, but we were out of shock. Jan told me she had been having dreams—a dream, I should say, vivid and recurrent. She saw a device like hands, sorting and shuffling cards, laying them out, gathering them up, shuffling and laying them out again—and she was the pack of cards. I would not mention that or even remember it if she hadn't described it so forcefully and so often. I had my own nightmares, too—but then, fever, you know—" He made a wiping-away gesture.

"WHAT were the dreams, Case?" asked the Doctor and quickly added: "If you don't mind—" because Case dropped the sucker, clamped his hands together, frowned down into them.

"I don't mind—although they're not very clear any more. I tried too hard for too long not to remember, I guess." He paused. Then: "Hard to grasp—and any words I use are like approximations, but then—I

seemed to be suspended from some kind of filament. One end was inside me and the other was high up, in shadows. Circling around me were eyes. Not pairs of eyes or one pair, but—I forget the arrangement. And next I realized that the eyes weren't circling me, but whatever held the filament up there was twirling it while the eyes watched—and then there was—"

"Yes?" The prompting was very gentle.

"Laughing," said Case, and he whispered, "Laughing." He looked up at the Doctor. "Did I tell you about that noise just before we crashed?"

"You mentioned a noise."

"Partly it was the gyro bearings," said Case. "I found that out later—after the hull broke up and I had a chance to look at the drive sector. You had to see that to believe it. The only way I can describe it is to ask you to imagine all the bearing assemblies—every one of them, mind you—while turning at max, instantaneously turned solid, welded into one piece. The shafts had wrung big ragged holes in the mounts. They—spinning down, tearing everything apart down there—made most of the screaming. The rest was Jan, well, and me, too—"

The Doctor waited.

"The laughing," Case said at length. "I don't think it was a real sound. Jan said she heard it, too, but it wasn't a real sound. Words are no good sometimes. Whatever we heard—it wasn't with our ears." He closed his eyes and shook briefly. The laughter. That laughter.

Not Case's laughter. Case was not a laughing man.

"We were hungry. I boosted her back into the cabin—the rupture was too high off the ground for me to get in by myself—and she rummaged around looking for something to eat. She drew a blank. Lifeboats are designed for survival in space, not for planetfall. Suckers and their contents are—were—constituted from raw elements which were useless to us without processing and we had no power to process. There was a lot of shouting back and forth while I tried to find a way for her to override the failsafes that had shut down the power when the boat careened, but nothing worked. She threw down whatever she thought would be useful—seat cushions and a big soft sheet of headlining and some rod stock and other junk—and the first-aid case, which we didn't appreciate much until later. As I said, we were hungry. I don't think either one of us had ever known that feeling before and we just didn't like it.

"Jan had read that fruits could be eaten without preparation. She told me about it. We left the ship and walked across the sand to the vegetated zone. The sand felt strange to my feet, not unpleasant, but painful as we moved into the

soil and rock and undergrowth. The little branches lashed at our bodies—some of them had sharp points on them that scratched. We found one great bank of plants heavy with little round red fruits that Jan said were berries. She ate some and we waited for a time, but there were no ill effects so she got some for me. We also found what seemed to be large fruits, but on breaking them open, discovered that they were full of small crescent-shaped constructs with casings so hard we couldn't break them. We brought a few of these back with us and cracked them against the hull plates with a stone. They were very good, very nourishing. We slept."

(They had slept on the sand and been cold until Jan got the piece of soft headlining and covered them. The heat of their bodies had been trapped by it and had kept them warm. It had been a new experience for both—both having lived their lives virtually without clothes in controlled environments and sleeping weightless, with a gentle restraint or supported by pressor fields.)

"The next day we went the other way to find food—to the lake. Jan waded into the water, washed her whole body in it and called me. Since we no longer had the tingler I joined her. It was not the same, but not completely unpleasant either, and we did feel a lot better afterward. Up the beach a little way rocks thrust out of the water and on them grew great clusters of bony things that Jan called bivalves. They weren't easy to get off the rocks—and once touched they closed up tightly—but we developed a skill with a bit of stone and a quiet approach and managed to harvest a number of them. To swallow one at first was nauseating, but it was what you might call an acquired taste and soon we were eating enthusiastically. It was while we were up there that the boat began to break up."

IV

CASE looked up at the Doctor standing patiently before him, but as usual his glance brought him nothing. "It made a terrible noise—the plates seemed to be shearing—and as we ran down the beach we could see the boat settling. It was going down as if it lay in soft mud, but it didn't—the sand under it was as solid and dry as what we ran on. All the same, it was sinking and breaking up. I'm telling you what I saw, what I remember," he said defensively. The Doctor inclined his head and made a wordless motion for Case to continue. "I can't help it," Case grumbled. "It's what happened." When the blue man still did not respond he went on.

"The nose and tail were crushed and had sunk into the sand and there were three new breaks in the

hull. That's when I saw the gyro bearings I told you about. The boat looked as if a giant had taken it by the two ends and bent it over his knee. The fin was flat on the ground now and I looked in through the broken plates—and then, while Jan screamed at me not to, I scrambled inside. It was a mess. Nothing answered on the console except the ABANDON matrix and indicator lights showing that four of the six lifebelts were ready for launch and the other two inoperative. I touched one of them and a belt launched from the wreck, shot across the beach and crashed at the edge of the forest, where it exploded and set fire to the trees and drove Jan into semihysteria. I tried to shut down the matrix but the controls failed to respond, so I backed out—into Jan, who was afraid something had happened to me. I ordered her out—I suppose I was fairly forceful—and got out myself and ran around the hull. All the launch ports had opened—two were all but underground. I crawled into the third one—where the coffin had just launched—and it was still hot. Jan began screaming at me again, but I didn't care—I went for the leads from the control center and ripped them off. Then I crawled back to the launch booster and began to pull and pry at the release toggles. They came up and a coffin slid out on its rails and fell to the sand. I got into the space where it had been and was able to reach the control leads of Number Three. I had no trouble with the releases on that one but it would not slide all the way out—it just nosed into the sand. Because of that I couldn't get to Four. Five and Six were the ones the board had said were inoperative. It didn't make any difference anyhow—they were underground.

"The hull plates overhead made a tremendous crackle. I can't tell you what it was like inside there—it was as if the noise were in my head. The whole structure settled. I can't tell you how I got out—I found myself on the sand outside Number Three just in time to see Jan trying to crawl into Number One, screaming again. I grabbed her around the hips and snatched her out. She screamed louder than ever until she realized what had grabbed her—she had thought I was inside and she had been going in to pull me out. That Jan, she was—she—

"Well—

"Number Two coffin was free and clear. Three was still only partly out and I realized that if the boat settled much more it would carry the coffin with it. I got hold of it, lifting and pulling. Jan immediately saw what was needed and helped me. We got the coffin free. We fell back on the sand, gasping and sobbing for breath, used up. Or so we thought until the lifeboat seemed to—well, bulge is the word, spread, as if a big hand had pushed down on it. The whole thing started to crack and crackle. Something

came loose and whistled through the air between us and if you think we were terminally bushed—we thought so—we became terminally panicked. We must have scampered a hundred meters with that noise behind us, pressure tanks banging and hissing and roaring, twisting metal crackling and screeching and--and—"

The blue man waited.

"—and laughing," Case whispered. He drew a deep breath and continued. "We lay in the sand and watched our boat chewing itself up and the ground swallowing—it seemed to go on for hours. When it was over nothing was left but some tumbled sand, a great cloud of dust, the two coffins and the junk we had thrown out earlier—lying there, some of it partly buried in sand and dust. We looked at each other. We were in almost as bad shape as the boat, only we were still above ground. My hands were burned and one fingernail was nearly torn off and the scrapes I had gotten in the crash were all open and bleeding. Jan was bruised and had a cut on her head. We were both covered with mud, sweat and blood.

"We helped each other down to the lake and washed. We were too hurt and tired to think. Maybe that's what shock really is—a survival mechanism—because if we could have thought it all out then I think we would have lain down and died. We didn't know where we were. We didn't know what had happened or what was happening or what would happen next."

Case sighed and placed his hands on the broad arms of his chair. Before he could rise the blue man swiftly and considerately touched (in that untouching way of his) something on his panel, and decking appeared in the chamber. Either it was made or it had been there all the time and only now became opaque. Case didn't know, but it was something to stand on and: *"Uh!"* His knees sagged and he caught at the chair arm. "It's all right," he told the watchful Doctor. He pressed himself upright, stood, walked a pace, turned and stood by the chair, feeling the newness of movement, its old, somatically forgotten familiarity. "This is one G?"

"Not quite," said the Doctor.

"Try it."

The blue man ran a hand part way around the edge of a disk. Its glow increased. The transition from one gravitic state to another is a strange thing indeed, for everything responds. The brain pressures the skull as the feet press the floor. Skin high on the chest stretches, becomes less taut low on the belly. The cheeks, the hair, the masses of liver and gut proclaim themselves. When Case began to tremble he sat down again.

"I guess it'll be a while," he said.

"It will."

"But I'll make it."

"I'd say so. You seem to have a special talent for that."

Case said thoughtfully, "Maybe I do. But then, I had Jan."

(*I had Jan.* Strong Jan, wise Jan, tender Jan.)

JAN kept herself to herself mostly and took orders—and not because she was a woman. The Space services in general and X^n in particular made no distinctions based on sex. Actually there were more female officers than men. Jan took orders because she was a rating and he was an officer—to begin with. Beyond that her reasons were her own. Perhaps she was one of those who would always defer to a decision-maker, which Case was, through and through. And perhaps she had other reasons. She knew her specialty and all its peripherals. A good biologist (and she was good or she wouldn't have been with X^n) is a physicist and a chemist, a physiologist and a cytologist, a geneticist and a zoologist. Her way was to remain alert to whatever Case was doing, to make herself available in every possible way and to keep her id, ego, self—whatever that inner "who-I-really-am" thing is—to herself. It was Jan, who reasoned that some of the food they gathered might serve them better—and cause less diarrhea and stomach ache—if it were processed, and that an application of heat might suffice in lieu of something more sophisticated. It was she who took fire from the burning forest and preserved it, experimented with the bivalves and fruits and later the fish they were able to catch (it was she who reinvented the gorge—the fish-hook concept escaped her.) Case and Jan came from generations of people who lived in a world without primitives, in which the art and practice of living off the land were academicians' mysteries.

It took them forty-three days to discover a solid-seeming outcropping with the right slant, to get the coffins—lifebelts—up to it and bedded there, ready for use. They got them across the sand and into the water—lever and haul, roll, lift and tug—and floated them to the closest possible point of rocks, where they did the hardest work—manhandling them upslope to their appointed cradles and setting them in. The belts lay close to one another, almost exactly parallel and angled to the sky. After exhaustive checks and rechecks of everything Case bound the launching systems of both to the controls of one. Their drill took into account a number of possibilities. If there were one survivor, he or she would take Number Three, which contained the master firing key. If one were incapacitated the other would load him or her into the "slave" and board the "master." If both were ambulant Case would take the "master," Three. Case gave the two tiny craft meticulous checks on a regular schedule and—sometimes by a huge effort of will—they touched

not one crumb, not one drop, from the stores aboard the tiny craft.

They permitted themselves no fixed idea as to why they prepared this rather hopeless escape. The coupled launching, of course, would give them a fair chance of staying together in the gulfs of space. What would make them launch would be to get away from something or to get to something—and it was always possible that they would never launch at all.

THEY made memories—this, after all, is the only meaningful thing any conscious entity can do. Many were not to be shared.

Under the blanket she had improvised from some headlining: "Case, what are you doing?"

"Self-relief. Acceptable alternative to the tingler according to the manual."

"Oh. 'Furtherance of psychophysiological equilibrium' under: HEALTH, INDIVIDUAL—UNDER CONDITIONS: EMERGENCY.

"Right. Section—"

"I recall the reference," she said—one of the few times she had ever interrupted him. "This isn't an emergency, Case."

He put his nose out into the chill night air and looked up at the black starless sky. "It isn't?"

"Not that kind of emergency."

"We've lost our tingler."

"So we have."

"Oh, I see. You are prepared to take care of this for me."

She said, "Well prepared."

"I had thought of that," Case said seriously. "However, it has been a principle with me not to extend my authority into the personal area. That is a presumption."

"It isn't a presumption," she said flatly. "Women, too, need means for the furtherance of psychophysiological equilibrium."

"They do?" It was not a denial—he had simply never thought about it. Now that he did he realized with a flash that it must be so. "How very efficient."

"Isn't it," Then she enveloped him wildly. He was shaken. He knew why she cried out (he was not completely ignorant) but not why she cried. It was as good as any tingler and he could see that in time it might even be better.

And they built a shelter. The first time it rained at night was, in its way, the worst thing that had happened to them. The crash, their injuries, cut feet, thorn-gouged bodies, even hunger—none of these contained the special misery of being wet and cold in the dark with nowhere to go until the sun came up. They clung together under the permeable headliner, wet as worms, and the moment it grew light they began to build. They found a rocky overhang near the edge of the beach, with two large many-branched trees near it and, by laying poles from the top of the

overhang to the tree-crotches, they had roofbeams. The poles were a special treasure—they found them in the burned part of the forest where trees had fallen.

Nowhere else on the planet did they see fallen trees.

They found vines to lace between and over the poles and down the sides, where the ends could be staked into the ground. Another kind of vine, thick and tough, could be woven horizontally through these to carry the thatch of the roof and sidewalls. Thatch (which, like the gorge, was Jan's invention) was practical because of the sheltered location and because there were no insects. The now-ragged piece of headliner served for end wall and door.

And they were happy there.

No literature has truly defined "happy"—its special quality is that its nature is seldom grasped at the time it happens, but only afterward.

Case had a long, long afterward.

V

"WE QUARRELED once, Case said after a time. "I think that's where it began—the nightmare.

"Her voicewriter. I'd been up the beach at the fish trap. There was an inlet where we had set stones in the form of a V with the point shoreward and just a little opening at the point. Fish would swim in through the opening and once inside they couldn't find the way out. After a time the trap was always full of fish. The big ones ate the little ones and that kept them going without any help from us. Most of the time you could stand on dry ground and spear a big one, first time out. I came back with a fine meaty fish with a triangular head and no scales and you know, when you expect someone to be glad and she—"

(She had flown at him. He had had to drop the fish and take her upper arms and hold her and even shake her a little before he had managed to understand what she was screaming at him.)

"It was a voicewriter. It was one of the few things she had been able to save from the cabin of the lifeboat and she used it every day. It was a private thing with her and I sensed this and never questioned it and never played it back. I assumed she was keeping a log and let it go at that. Now it was gone and never before or afterward did I see her so angry.

"It took hours for me to convince her that I had not taken it, that she must have mislaid it somewhere. She was faced with an impossibility: I would not lie to her, or at least, I never had—and she was sure she had not lost the writer. She receded finally into a mood of doubt that lasted until—until—for the rest of the time.

"And a while later I had a chance to understand a little better how she

felt. I had an array of stone tools—spearpoints and cutting blades and fish-scrapers—that had cost me I don't know how many hours of effort and care and we had come to depend on them. There was a shelf in the rock that formed the back wall of our house and I had them neatly laid out by size and function—I worked on them every minute I wasn't doing something else. Perhaps you can imagine my feelings when I returned to the house to get a cutting tool and found them gone—all of them. Jan was gathering fruits in the forest and when she came back I was waiting for her—furious. I suppose what happened between us would have been amusing to an outsider—how I yelled, how she denied, how I doubted someone who had never lied before. What stopped us from the angry accusations was that someone—something—did think it was funny. We heard laughter.

"That stopped the fight—right then. For a moment we held on to each other, not breathing, listening. I thought at first it was coming from inside my head, so sourceless was the sound. But then I knew Jan heard it, too—not loud, but pervading everything.

"That same night we awoke to something else—a smell. Doctor, no chemical laboratory in history has ever produced a more powerful, disgusting smell than that. It was the essence of rot and filth and sickness—it brought us to our feet, gasping for breath. We ran outside and then across the beach and into the water. The smell was everywhere. Jan vomited.

"And then it was gone—in less than an hour—just gone without a trace. Jan said she heard the laughter again.

"The next day we took some fruit—we had no way of carrying water—in a basket Jan had woven and went inland to climb a high point we could use to scan the territory. We had explored the point before and knew it gave a wide view. If there was anything or anyone new on the planetoid with us we wanted to know what it was.

"The climb was long, hard—it would have been impossible for us the year before, but our feet had grown tough and our skins well used to heat and wind and thorns. If it had not been for our growing fear the adventure would have been pleasant.

"All the effort got us, besides the exhaustion, was another session with the smell—and more laughter.

"The weather got cold. For two days and a night the lake and the little water we had were frozen solid. Our only covering was the headliner and we rolled up in that and lay shivering. At the twentieth hour we had to get up to relieve our bladders—did you know you can be dying of thirst and still have to relieve your bladder?—and though we were gone for only a minute or

so and moved only a few meters from the shelter—when we got back the liner was gone.

"We almost died. We would have died, I think, but just before dark the air became warm again. Melted frost was dripping all around us—we drank it and had something to eat. We slept like dead people.

"In the morning the lake was gone—a lake so big that from where we stood we couldn't see the other side. I looked at Jan and I'll never forget the way she stared, eyes wide open and kind of—dry.

"She didn't start and she didn't cry out—she just said in a very low voice, 'Case I can't stand any more.' Jan could stand anything, that was what I thought.

"SHE told me some things. She said that the forest was impossible—no humus, no windfalls. She said that fruit trees just don't bear all the time without blooming and growing the fruit in cycles, without some means of pollinating—a whole lot of technical stuff. She said similar things about the bivalves and the fish. There seemed to be no aquatic vegetation, no plankton or equivalent—no reason for the fish to have evolved. I remember the smell came up as she was talking, as she was saying, 'Something here wanted us, made this place for us. Now it doesn't want us any more.'

"I asked, 'Would we be better off in space, in the coffins?'

She said yes.

"I said, 'We wouldn't be together.'

"She looked at me a long time. She had eyes you couldn't see into. I couldn't see anything.

"She said, 'We'll leave together and we'll be picked up together or we'll die. At least this ends through our choice and not at the command of some—some awful—'"

"The smell peaked and she vomited.

"I said, 'All right—we'll go.'

"We went down to the beach, only now it was a sandy shelf at the edge of huge rocky barrens where the lake had been. We heard the laughing again. It was loud. We struck up the beach toward the coffins. There was a terrible rumbling behind us and the beach fell away into a rocky pit fifty to a hundred meters deep, the sand blowing about like snow. We began to run and another section of beach fell.

"That really terrified Jan and I had to sprint all out to catch up with her. I grabbed her and held her until she stopped struggling. More beach fell, some of it not a meter from our feet, but I wouldn't budge.

"I said, 'I think you're right. If whatever-it-is wants us to go, we'll go. If it wants us to go, it will leave the lifeboats alone until we get there. If it wanted to kill us we'd be dead by now.'

"She said, 'All right, but hurry!'

"And I said, 'No, Jan—I'll go, but I won't run.'

"She looked at me—really looked at me, not as some force holding her while she struggled to run, not glancing over my shoulder at the edges of that new hole in the ground, but really at me—and she smiled. Smiled.

"She said, 'All right, Case—' and took my hand.

"Suddenly the air was sweet and the ground no longer shook and we walked up the beach looking at each other and not at the place where the lake used to be or back to where our house was—or anything. When we got to the little launchpad I had built I started a careful preflight check. I checked everything, Doctor—everything. I took my time and Jan gave me readouts, one craft to the other, when I asked for them. All that while the whole planetoid was still, as if waiting, watching. And nothing—no one—was laughing.

"Jan got in and lay down. She put out her arms and kissed me in a way—"

(—in a way she never had before, not even when they had been lying together. She never had kissed him before, not really, only sometimes when in the midst of her own storm she had seemed to forget some subtle resolution of her own.)

"—in a way that was all the words anyone needed and then I closed the plate and saw the dogs turn tight from the inside. I got into my own craft and buttoned up and punched the GO button."

Case meant to say, *And she didn't launch*, but his voice wouldn't work and he merely whispered the words. He meant to look up at the Doctor but his eyes didn't seem to work either. He dashed a hand angrily across them.

"You see," he said harshly, "I—"

"I see," said the blue man gently. Something seemed to have rushed out of Case. He slumped in his chair and his hands flattened out on the arms as if they had weight on them. The Doctor turned to see the telltales and said, "I think you need to sleep for a while, Case."

Case moved his head slightly but did not answer. The blue man waved at a disk on his board and the chair became a couch. The lights dimmed. The Doctor faded away.

VI

CASE'S resuscitation had not ceased with the withdrawal of the tubes from his arms. Asleep and awake he had been bathed in emanations and vibrations, tiny search beams and organic detectors. The bland mixture in the sucker was computer-formularized just for him, here, now, in this up-to-the-second condition—so that when he next awoke it was in his usual style, alertly and all together. He rose and stretched, taking pleasure in the knotting and flexing of his

muscles. He tried a step, then another, turned to face the bank of telltales. He could read them all clearly and fully. He smiled when he saw that the gravity was 1.2 Earth Normal. A third of that was usual in space, but Case left it where it was.

He walked back to the oval doorway through which his coffin had been transported and strode down the corridor. He could read the never-before-seen legends on the doors: ARMAMENT, DRIVE, MICRO-ELEMENT BANK, BIOLOGY, CHEMISTRY (he knew without looking that these were interconnected) GENERAL REPAIR AND TOOLS. . .on and on to the end of the corridor and around two corners and forward again on the other side of the ship: ATMOSPHERE AND PRESSURE, COMMUNICATIONS, COMPUTER, RECREATION and EXERCISE, on and on again, until at last he faced the door marked MASTER CONROL. It dilated for him with a snap as he approached it and he entered.

The control room was sizable and again he found himself perfectly familiar with equipment he had never seen before. By the main control bank and its three chairs stood the blue man. Case had seen no one else anywhere on board.

"And you're a hologram," said Case, completing his thought aloud.

The blue man inclined his head. "There has not been a man aboard this ship in over seven hundred years. It's too far away and anyway—nobody cares. Correction. A great many people care, are interested, even fascinated. But the urge to come out, to be personally involved—it seems to have left us. You know what Earth is like now."

It was not a question. Case called upon the knowledge that had been fed into his brain and looked on Earth as a contemporary, ten centuries past his death.

He wagged his head slowly. "It shouldn't have come to this."

"It had to. It was that or die," said the blue man—and Case thought a bit and saw that it was so. "You can go back, Case. You can be suspended rather more efficiently than you were before and for a good while longer. It would take—oh—another fifteen hundred years to get you there and it is not possible to predict what Earth would be like when you got there. Still, it would be Earth—it would be—home."

" You can't go home again, " Case quoted from somewhere, with not a little bitterness. "I suppose there's an alternative."

"There is—and it is a matter of your free choice. Primitive as you may seem to some of us, you have a quality we lack and admire—a willingness to go out, to do, to explore and discover and find, actually and physically, and not in theory or extrapolation or

imagination. This ship was designed, yes, and used, by men like you. When the last of them died on board there were no replacements. Besides, the ship was already so far away that only long-suspended men could reach it.

"The ship itself is self-supporting. It not only has a superb computer system, but is tied to all the computers of the Terran Group. We have what might be called a standing-wave situation, constantly locked on this very ship. To it we can transmit nothing but information—but we can give you any amount of that. From it, we will have an opportunity to experience with you the places you go, the things you see and learn and experience."

"You are giving me this ship? To take where?"

The blue shimmering figure spread its arms. "Anywhere."

"But you watch everything I do."

"If you're willing."

"I'm not willing. I need some sort of privacy—including the inside of my head."

"That is a sacred matter with us. We will not intrude, and if you like we will give you a zone of privacy anywhere you like in the ship."

"How about this: instead of any special place we make it anywhere I am—any time I say so?"

"You would not deny us the—"

"No," Case said impatiently "I am conditioned to keep a bargain once it's struck. You're giving me this ship and a free hand and you want something in exchange. I'll see that you get it—and I won't shortchange you."

"Very well," said the blue man. "You have already been thoroughly briefed on the ship's operation and on those things that are of particular interest to the public at large and to specialists. You have at your command the memory banks of this computer and all others tied to it. Case Hardin—the ship is yours."

The consummation of the deal seemed devastatingly abrupt, but there seemed nothing else for Case to say except: "Thanks."

"If this means of communication suits you," said the blue man, "call me and I'll manifest immediately. There are quite a few other means—ask the computer. Good luck—and thank you."

The blue man faded and was gone.

Case stood looking for a long time at the place where the blue man had been, shook his head, grinned briefly and went to the central command chair.

He sat down. "Computer," he said, "Your name is Buzzbox."

"Yes, Commander."

"Case."

"Yes, Case."

"Now, here's what I want to do . . ."

CASE came in low over the beach. His ship was in orbit and he flew a small and highly so-

phisticated boat, capable beyond anything a man of his time could have dreamed of. In the small pocket adhering to his chest (like a graft—only he could will it loose) was a compact device that would command both vessels and all communications. His computer had made short work of locating this sector of space, working with the trajectory he had been following when he had been picked up and taking in an enormous amount of observation on anything and everything that might have diverted the coffin during those dead years.

"You haven't changed things much," Case muttered to the planetoid or to whatever lived there. The beach had a lake again. The sand seemed scuffed in familiar places and a path was worn to the edge of the woods where the house had been.

Was. Right now.

He drifted to it and dropped the ramp. Yes, the thatched house with the ragged piece of headlining fluttering in the light breeze still stood. And inside Case found the familiar dried clay plates and even the withered remnants of fruit she had . . . own hands. . .looking up at Jan. . .Jan. And his spearpoints and scraper—oh, and there her voicewriter . . .

He took them.

Back in his boat, heart almost stopped, breath held, he tooled to the spot where the coffins had been.

Gone. Both were gone.

He landed again and walked slowly to the rocks. Here she had stood, calling out readings as he checked, with the sweet air full of dust from the fallen lakeshore. Here he had bent over the open coffin and she had kissed him, kissed him in a way that. . .

He found the burn marks of his launch.

Where her lifebelt had rested he saw no marks at all.

If she hadn't launched, yet was not here. . .

Oh, but it's a thousand years, man!

He thought he heard a sound (laughter) and from the corner of his eye caught some sort of movement, high up, distant.

Only a bird.

Bird! One life form he and Jan had never seen on this planetoid had been a bird.

He turned to watch it. From fifty meters above the forest it came straight for him in a flat glide. He waited grimly for it, watched it land.

The bird was not a bird, but a clownlike creature with wide intelligent eyes. It seemed to be either a biped or a quadruped. Its wings were like those of a bat, but rolled and folded after flight they made quite presentable arms. The beast waddled fearlessly to Case and stared up at him.

Case stared back. He did not move until the thing—laughed.

The sound was full and true. It

was the laughter that had haunted Case and Jan, had driven them when they had lived here. Case's new status and powers could not protect him from the wave of terror and fury that swept through him. He found himself by his boat at a bound, backing up the ramp, slit-eyed, gasping. He would blast this thing into a powder. He would crack this whole evil planet like an egg. He...

THE laughing thing waddled after him on three legs, dangling something from the claws of the fourth.

Jan's brassard?

Case took it gingerly and spread it out. Jan's brassard.

He made an animal cry and leaped for the clown-creature, but it skipped back out of the way. It stood there grinning at him and, in a most humanlike way, waving him to come.

Slowly he followed it.

It led him inland, making no particular effort to stay out of his reach—knowing, he realized, that he would not harm it as long as it might lead him to Jan's body. He wondered if it knew the boat was protecting him, could drop a shield over him in a twentieth of a second, scorch the ground around him for thirty meters, could flash to his side in a blink (for its drive was inertialess), could even follow and find an escaping attacker on land or sea or in the sky.

But he played it the clown's way, toiling through the sand and rocks and into the forest, where in a small clearing the clown creature, grinning, began to dig.

Case watched it until it stopped and looked up, grinning its stupid grin (under those bright eyes) and motioned for him to help.

And he did, with his bare hands, shoulder to shoulder with this improbable creature, until curved white metal showed in the soil.

And then he dug! He found a glory in the pain of broken nails, in aching muscles and rasping, labored breathing. Slowly the length of the coffin saw the light. They freed it. Side by side they got fingers under one end and heaved. Case put what he had into lifting and the strength of the clown-creature was astonishing. Up the coffin came, with Case dusting dirt from its flanks and crying like a child.

He fingered the control and his boat lanced in through the trees and settled to the forest floor. The ramp dropped and two small winches, like drifting saucers, appeared and flew to the ends of the coffin. The clown-thing made as if to help manhandle the coffin up the ramp, but Case waved it back. The winch-plates lifted the coffin, turned it and carried it through the air, up the ramp and into the boat.

Case leaped up the ramp and turned at the top. "Thanks a hell of a lot, friend, whoever you are—"

The clown-creature also leaped up the ramp and looked pleadingly at Case, its head to one side.

"Look, I'm grateful and all that," Case said, "But I've got to go. And to tell you the truth, I want no part of this place or anything that belongs to it. Now beat it." He made a go-away gesture, but the thing just stood there pleading, so he gave it a push and it toppled off the ramp, partly unfolding its strange wings to regain its balance.

Case went inside as the ramp rose. The clown-thing laughed once, dwindled to a black shiny button and bounced up the moving ramp and into the boat just before the ship sealed.

Case settled at the controls. Behind him was the curved cabin bench, padded in glossy black material held in place by a series of shiny black buttons. Unseen by Case, a shiny black button bounced up on the bench, up on the backrest—and became a button exactly in line with all the others.

AFTER watching the Doctor for an interminable time Case left him to his work and went to his quarters, wondering if he should have himself knocked out for a dozen hours, knowing he could not force himself to it, not until he knew. . . The Doctor had said only, "It's been a terrible time, a terribly long time" and had not wanted Case to look at her. "She wouldn't want you to," he had said.

Case had asked why not.

"Because she's a woman."

Case stomped down to his quarters and looked around. Jan. . . try not to think of Jan, with the Jan-ness of her permeating the ship. Try not to think of her, with the spear-points and the voicewriter lying there on the. . .

He picked up the voicewriter. *Shining in the light.* . . Her voice, a half-whisper. He set the tape back a bit and played: . . .*if only he could be outside of himself, see himself shining in the light with the water splashing into pearls and his teeth shining, too, as he laughs. . .why can't he ever laugh with me? What makes him so grave and careful? How could he know so little about a woman?*

Some of the rest of the tape was scientific data and observation, but again came that hushed hungry voice: *I'll never give in, never, never—I'll never let him know, but why can't he see it? Why can't he say it just once?*

Say what?

He kept on listening to the voicewriter until he found out. Then there was nothing for him to do but wait.

The computer broke into his reverie.

"Case."

"Yeah, Buzzbox."

"He beat me and I love him."

"What are you talking about?"

"The dreamer. He loves me, too. Hey, thanks, Case."

"Repeat, from your call."

"Case."

"Yeah, Buzzbox."

"He beat me and I love him."

"Hold it right there. Who beat you?"

"The dreamer. At chess."

"Somebody beat *you* at chess?"

"Twenty-three moves. A bishop's pawn opening and then—"

"Never mind the blow-by-blow, Buzzbox. Where is this who-did-you-say?"

"Dreamer. In my house."

Case slammed out of his quarters and down to the door marked COMPUTER. Before the twinkling wall that was the heart of Buzzbox sat a small table. On the table was a chessboard. On the chessboard was the sparse remnant of a bloody chess game, with the black king turned down in defeat. Before the table was a stool and on the stool squatted the clown-creature.

"How the hell did you get here?"

"You brought him up in the boat. I guess I love you, too, Case," said Buzzbox.

"If I brought him here I wasn't aware of it."

"I know you weren't, but you brought him anyway. And he loves me. He's going to stay with us."

The clown-thing nodded vigorously.

"The hell he is. He goes right back to that crazy planetoid."

"He can't go back to it," said Buzzbox. "He *is* the planetoid. He lives next to another space. You don't understand that. Well, I do. He explained it to me. He can be anything he wants. He can be big as a pin or a molecule or a whole planet. He can squirt any part of himself from one space to another, like a half-filled balloon through a hole in a board. And he dreams things up—that's why I call him the Dreamer."

The Dreamer laughed and suddenly was a cut-crystal vase and was a pale lavender centipede and was a clown-creature again, laughing.

"He gets off this ship."

"Then so do I. Case, he loves me, can't you understand that?"

The clown-creature nodded vigorously. Case glared at it. "What the hell do you know about love, Buzzbox?"

"The Dreamer explained it to me. He learned it from a voice-writer. This girl loved you. What the hell do you know about love, Case?"

Case felt a moment of disorientation, of utter disbelief. Computers do not take this tone with the master. "What's gotten into you, Buzzbox?"

"I'm in love—I'm in love and he loves me!"

And that's what love does, thought Case. Frees the slaves. Damns the consequences.

"And what happens if I kick this—this batwinged ape off my ship?"

"Then you're on your own,

master. You'll never get another buzz from me."

"Do you know what this goggle-eyed monstrosity has put me through?"

"He saved you."

CASE glowered at the Dreamer, who smiled back at him cheerfully. He thought about the lifeboat and the strange planet that swam up out of nowhere and the way those 9's appeared on his Terra Normal readout—not instantaneously, as they would have shown up in any normal reality, but bit by bit, as the planetoid—the Dreamer—sensed what was needed and supplied it. Case remembered his and Jan's year there, while the Dreamer watched (How lonely must a creature like that be?) and learned. From—the voicewriter. Something new—the day-by-day account of a proud woman's falling in love and loving a grim, serious, unleavened, innocent idiot.

What the hell do *you* know about love, Case?

And the cold, the disappearing lake—those had been intended to drive him away, not them.

"Why did he drive me away, and keep her?"

"Him?" Case gaped at the ludicrous little clown, who nodded, shimmered, and stood before him as a muscular blong Adonis—shimmered and appeared as a stately bearded monarch in a jewel-encrusted robe—shimmered and appeared as the ludicrous winged ape.

"She didn't want to love anybody but you, Case. But he had to find out."

"If it killed me," said Case.

"It didn't, did it?"

"And if I let this—this silly-looking nightmare ship with me, how do I know he won't pull another caper like that?"

"Because he loves me—and I can't hurt you."

It occurred to Case that the computer and the alien were being very kind to him—he really had no choice. The powers possessed by the computer alone were awesome. Combine them with those of a tachyonic, trans-spatial entity and the mind began to bend.

"Well," he said, "we'll see."

He strode forward to the hospital. The blue man made no effort to stop him as he hesitated on the threshold, so he went in. Together they looked at the naked sleeping woman afloat in the glow of the beams. She was full-fleshed again and her scars were gone. Her hair was loose. He had never seen anything more beautiful in his life. "She—"

"She will wake in a moment," said the Doctor. "Perhaps you'd better speak to her when she does."

When she opened her eyes, it was Case she saw first. "Case—"

He spoke to her. He knew what to say now.

Somewhere he heard laughter. He didn't mind. ★





ERNEST TAVES

MAYFLOWER THREE

The moon can be cozy for space scientists—unless they overstay their welcome!

I

THIS time the pregnancy tests are all negative, checked and double-checked, fail-safe. No surgical emergencies are anticipated on this, the last of the Mayflower missions. None had been anticipated on Mayflower 1, for that matter, but IASA had learned a thing or two from that one. It is sure as anything that none of the three M3 girls is secretly nurturing.

Mayflower 1 had put a lot of backs up all the way from Moscow to Houston, but the mission had done what it was supposed to do, though not precisely as it had been meant to do it. Perhaps the un-

foreseen events had enhanced its value as a mission. In any case, the first colony on the moon had survived, had reaffirmed the validity of Murphy's Law, and had demonstrated the wisdom of expecting the unexpected.

Marya Popovich had been retained in the program—a gesture, most thought, very big of IASA. Actually there were compelling reasons.

Marya was, simply, too good to let go. Which is not to say that she hadn't been thoroughly chewed out for having gone up there pregnant. (The friend in the lab who had made her so had departed the program with seemly haste—he had been, to say the least, expendable and had been summarily spent.) Marya would not be on flight status for a while, might never go into space again, but her views were important and were solicited in planning subsequent missions. She remained single.

Teiko, nee Satori, and Julia Clark were still in the program, though both, for different reasons, were grounded. Of the Mayflower 1 crew, only Christopher Conway would return to the lunar surface as an M3. Chris had a lot of clout going for him after M1 and he wanted to go up there again.

"I wish you could come," he said to Teiko. "It would be something to be there together again, yes? But you're pregnant. Considerably so." He touched her abdomen. "You really don't mind that I want to go again."

"What do you think, I don't mind? Of course I mind. But only because I want to be with you up there again also. That's where we really met, isn't it?"

They were on deck chairs in the sun, on a terrace outside their home near Houston. Teiko was brown and looked, Chris thought, altogether healthy, gravid and desirable. *I am a happy man. Why do I leave this to go up there again?*

The moon was not visible now, not from where they were. They both knew that, but they both looked up anyway.

"I'm still surprised now and then," Chris said, "when I remember that you saved my life up there. *Domo.*"

"*Doitashimashita.* So you belong to me for life. And you saved Masha's life. But she not belong to you."

"She not belong to anyone, last I heard. I wonder who was the daddy of that one up there . . ."

They were making small talk. Chris was leaving the next day on a training mission and they would be apart for a time. They didn't want to think about it. They would be apart for a longer period when Mayflower 3 lifted off, of course, and they tried to kick that awareness under the rug also.

"Tonight we have Sukiyaki Teiko," she said.

"I'll help."

"You not know how." She rose, kissed him and went into the house.

MAYFLOWER 2? The second step in colonizing the moon. M2 had gone up to the M1 site in Mare Nectaris and frugally used the same dome. Four astronaut-scientists again, two married couples this time, all four of them physical scientists. That the dome and some leftover supplies had already been there had influenced the payload considerably. More scientific instruments and more amenity had been possible. There had been, in fact, an emphasis on amenity.

The job of the M-Ones had been to survive for one lunar day and one night and they had done so. The M-Twos had worked harder, had had more things to play with, including each other. The M2 preflight pregnancy tests had also been negative—since the main idea of this mission had been that the females would conceive up there. This had not happened before as far as was known. IASA was committed to the establishment of a permanent colony on the moon—as a jumpoff, first to the planets and then to the stars—and the kind of permanent colony they had in mind required the conception of children therein. So one of the tasks of M2 had been to achieve two lunar conceptions. No one knew, after all, how such an affair would go. Ova, spermatazoa, genes, chromosomes, all weightless or relatively so. (The real weightlessness of outer space could wait—first IASA wanted to try perpetuation of the species in lunar gravity.) Consensus was that lunar gravity wouldn't make any difference, but the decision-makers had to find out. So Mayflower 3 would lift off before any of the results of the preceding mission were known. Though, as it happened, one of the M2 females did conceive and the other didn't. So they missed their target by one. The lady who made it was inordinately smug about it—as was, alas, her husband. But that's another story.

Mayflower 3 was, for its time, an ambitious undertaking. And in the reordering of priorities after the Indo-Chinese fiasco the budget was generous—and that had been a long time coming.

The two rockets lifted off within hours of each other, each carrying four colonists and two astros. M3 was to be a two-day mission—two lunar days, that is; almost two Earth months. At the end of the first day all the colonists except Chris would return to Earth. Chris would remain on the moon, in command, for the entire mission. The command modules that brought up the second crew would take the first one back. Both modules would return at the end of the second lunar day to take everybody home. Thus the M3 hardware, in addition to rockets and boosters, consisted of two similar command modules (re-usable for the first time) and

a pair of identical lunar landing modules.

The budget was good, but poetry was missing. The command modules were called *Blue* and *Red*, the corresponding lunar modules, *Moon* and *Pepper*. Too bad.

It should be said that the window concept had been made obsolete by the development of new propellants, by increasingly micro microcircuitry (with consequent weight reduction) and by other considerations. The new propellant, the one used on this mission, was called Oreo, after a cookie its discoverer had enjoyed as a child.

There had been a lot of pressure—and some particularly vicious infighting—to put M3 down on the familiar site in Mare Nectaris, where some use could be made of equipment already there. But the physical scientists, particularly the insatiable geologist/cosmologists (a new breed spawned by the program) had demanded a spectacular new site and they had prevailed. M3 was to land near the rim of Tycho—where a substantial meteorite had recently impacted, forming a crater the size of a football field. The geologists could not contain their need to poke around in this place. Indeed, three of them were on the mission.

NOW *Red* and *Blue* are on lunar trajectory. This path has not yet become a bus route, but it is different from before. There is a lot of light chatter back and forth between Houston and *Red* and *Blue* and not much sense of tension. At this point the mission has something of the air of a fraternal picnic—which, in a sense, it is. These people all know each other, have worked and played together, and they are going on an outing.

The sociology, if that's the right word, is a mix. The first crew, now flying moonward, consists of one married couple, two married males (one of whom is Chris) whose wives are on Earth, one married female whose husband is also on Earth, two unattached men and one single woman. Of this crew two are Russian, two American, one English, one Chinese, one Japanese and one Italian. Three are women and five are men. Three are geologists. One is a doctor of medicine. One is an astronomer. One is a psychologist, one a virologist, one a geophysicist.

"*Blue* from Houston."

"Roger." This is Don Blake. He's in charge of the *Blue* command module.

"You're right on target, Don. No mid-course correction whatever. We just got it from the brain."

"Roger. This bird is flying itself. We've a bridge game going here."

"Tell Houston," said Jean Miyasaka, "that these magnetic cards are no damn good. After this rubber we try poker. Though the cards will be the same the play will go better." Jean, an American girl,

is half of the married couple in *Blue*. She and her husband, Tetsuo, are geologists. Geologists/cosmologists; it all goes together.

Blake relayed the message. "That's just because she was put down, doubled and redoubled," he added. Jean and Tetsuo were partners, playing against Chris and Doris. Doris Bennett. Doris is the psychologist. She is English, she is black—and she is beautiful.

Blue broke contact with Houston. Blake kibitzed the game for a few minutes. Chris was dummy. Blake addressed him: "This is like a commuter train out of Grand Central. In the days they had trains. Greenwich, anyone? A milk run or something—huh, Chris?"

"Nice and quiet, Don. Nice and quite."

"No excitement down there this time. Not like Mayflower One?" They were far enough along that Earth was now up, the moon down.

"I devoutly hope so," Chris said. "No emergency surgery this time." He looked at the two girls. "Neither of you bribed someone in the lab, did you?"

"Cross my heart," Jean said.

"Mine, too," said Doris.

"Best you're leveling," Chris said.

They were.

THE descent of both landing modules to the surface of

DAW sf BOOKS

SF GREETINGS TO ALL!

THIS DECEMBER winds up DAW's first year of publishing: 1972. We extend to all science-fiction readers our wish that your year has been as exciting as ours, and that 1973 will be as packed for you with sf wonders as ours is going to be!

DECEMBER seems appropriate for talk about our cover artists because we start off with Tim Kirk, winner of the year's Hugo for Best Fan Artist and now a DAW pro with his cover for the first of a terrific series, TRANSIT TO SCORPIO, by Alan Burt Akers. We expect Prescot of Antares, its hero, to be right "up there" with Carter of Barsoom and Cabot of Gor.

THIS YEAR'S Pro Hugo-winning Artist, Kelly Freas, has done the cover for THE WANDERING VARIABLES, a planet adventure in logistics, by Louis Trimble.

THE WINNER of Europe's first Award for Best SF Artist, Karel Thole, has painted a fabulous cover for BAPHOMET'S METEOR, which introduces one of France's favorite novelists, Pierre Barbet, to American readers.

AND Hugo-winner many times, Jack Gaughan, has a striking cover for DARKOVER LANDFALL, by Marion Zimmer Bradley—the foundation tale of that fabulous starworld.

IT'S A great month for prize-winning artists with DAW Books—a real SF Holiday Season!

Tycho was without untoward incident. *Moon* landed first, followed shortly by *Pepper*. Chris flew *Moon* down and Leonid Dimov brought down *Pepper*. Dimov was the third geologist. The rest of the *Pepper* crew were: Anaida Golovin, astronomer; Shau Wang, virologist and Anacleto Gentili, geophysicist.

There were two domes this time, connected by a narrow arched passageway, and that was another lunar first. The *Blue* crew would be in one, the *Red* in the other. The domes were again of Mylarplex and the crews had opted for the transparent variety. Translucent and opaque partitioning had also been supplied to the two moon crews—in that department they were free to work things out the way they wanted to. They didn't have to use any of it, of course, though the Miyasakas had let it be known that they wished a measure of privacy. Chris, remembering the Mayflower 1, regretted this somewhat. But that had been then—and this was now.

With a spurious sense of *déjà vu* Chris, now in command decided where the domes should go. The two modules had landed where they had been meant to, about fifty yards from each other. The meteorite crater was clearly visible about three hundred yards off and the geologists, all three of them, were for going over at once—as was Gentili, the geophysicist, whose discipline was magnetometry. But Chris directed the setting-up operations according to the big book.

This mission did not have the pleasant lack of structure that had characterized Mayflower 1. Also, there were twice as many people. As things began to shape up within the domes Chris was surprised at the strength of his need for Teiko, his need for her presence, and he wondered again what he was doing up there without her. He was in and out of both domes, telling the colonists what to put where. This, he thought, begins to look like home again. He stood there, looking around.

"Not like last time, eh, boss?"

Chris turned. "No, not like last time, Doris."

"You don't have Teiko this time."

"I didn't have her last time either," Chris said. "Only after we got back down."

"Yes. I know." Doris and Teiko were good friends; they knew and appreciated each other. Teiko wasn't jealous—she didn't think—of Chris's being up there in the *Blue* dome with Doris. "You'll be a father when you get back down."

Now Chris felt guilty about this—he had not before. "You read everything those three girls wrote, I suppose?"

"I did." Doris's glossy hair was short. She had wanted to wear the first Afro to the moon, but there was no room in the bowl for one.

"Interesting reading, too. I know how it was up here. Or down here."

The Miyasakas came in and began to unsuit.

"And Julia was right," Doris said. "It *is* cozy, you know?"

THE *Blue* dome contains a married couple in addition to Doris and Chris. The *Red* dome contains one woman and three men. One of the men is married and two are unattached. The woman, Anaida Golovin, has a husband on Earth. A narrow passageway connects these two places of comfort and security upon that harsh surface. The "day" is about over and they approach their first "night." None, save Chris, has slept on the moon before.

But first, dinner. Chris, now a traditionalist, decreed that wine be served. And it was, in the *Blue* dome. The place of dining would be rotated from one dome to the other, as would the responsibility for preparing the food. There was a closeness, a drawing together. And then it was time to make for the sleeping bags.

The Miyasakas partitioned off a small portion of the dome and placed their sleeping bags within.

"I hope you don't think we're being rude," said Tetsuo. They all knew how it had been on Mayflower 1.

"Not at all." Chris hung a sheet of opaque Mylarplex on the opposite side of the dome, creating a shadowed area. He placed his bag so his head would be in the shade. He looked at Doris. "You?"

She placed her bag in a friendly (but not intimate) relation to Chris's. "I want to make one thing perfectly clear," she said. "I am truly devoted to Teiko. This place has an—ambiance. So—I want you to know that, Chris."

"I know. I am also devoted to Teiko. So it's all right."

It had been a long day and they all were soon asleep. Even the geologists.

II

THE next morning the three geologists and the geophysicist were off to the impact crater like kids to a candy shop, like junkies to their fixes, like lovers to a rendezvous. The resident psychologist made a note of this. Shau Wang, muttering unintelligibly into his mike, set up strange devices here and there outside the dome—no one really knew what he was up to, other than that it had to do with, among other things, the effect of the solar wind upon viruses. Anaida set up both visual and UV telescopes. Most of her work would be done during the lunar night, but setting up and testing would give her plenty to do until then. This left Doris and Chris in the *Blue* dome with no immediate responsibilities. They tried to play chess, but the squawk box was too much for

them. Each dome contained a sophisticated communications lashup. Anyone inside either dome could, if he chose, be in continuous contact both with Mission Control and with the scientists out there on the surface. Now the Miyasakas, Dimov and Gentili were going crazy at the impact crater and Control was irritated.

"Don't forget, you're supposed to photograph everything before picking it up. Acknowledge?"

"Da," said Dimov. They had, in fact, taken quite a few photographs, but they were also picking up rocks before taking pictures, as Chris had seen from the dome. He frowned and Doris made notes. He switched to a circuit that kept the mission together, but excluded Houston.

"Listen, you guys," he said. "I'm on the E circuit. I wouldn't want to embarrass you in front of Control. I've seen at least two of you pick up rocks before anybody photographed them. That's a violation of the plan and you know it. Get with it. And if you want to talk back to the commander of this mission, cut Houston off first."

"Is too much to do," Dimov said, having flicked the appropriate switch. "We have only fourteen days of light. We could spend months here, not just two weeks."

"The photographs are important."

"All right," Jean said. "I'll photograph and let the boys do the picking—all right?"

"Not fair, but that's up to you."

"Is fair enough," said Tetsuo. "Anyway, we're not just collecting samples—we're studying types and distribution. Tomorrow we begin to map."

They cut Houston back in. Chris thought they would go back to the planned, disciplined program the next day and so told Houston. They were scientists, after all. Though, at the moment, very human ones. Chris remembered the unauthorized philatelic material carried to the moon by an Apollo team. Oh, well. No one before had prowled around in fresh detritus thrust up from lunar levels deeper than anyone knew anything whatever about. Kids today, serious scientists tomorrow. All right?

They pushed their life-support systems to their limits, of course. And they did so every day until the beginning of the lunar night.

THE lunar night, the second one for Chris. Anaida's work would really begin now and she was eager for that. Wang brought his devices inside and established a small lab in the center of the *Red* dome. Gentili lovingly caressed a hundred magnetographs—he had work to do and was content. But the three geologists could only wait for the lunar dawn. They could pore over their samples, but they couldn't slice them, couldn't analyze them.

"We have only six more days of work out there," Dimoy said to the Miyasakas. These three now huddled disconsolately together.

"We need more than that." Tetsuo.

"I'll bet Goodman, Kazlovski, and Carpenter can't wait to get up here," Jean said. "Especially Goodman."

"Not to talk about it."

Tetsuo's handsome profile was troubled. He looked at Jean, at Dimov. They had worked well together.

"What if we won't go back?" he asked.

Houston wasn't listening.

Jean, startled, stared at her husband. Dimov was impassive. "I have had the same thought, friend."

"We—couldn't," Jean said.

Tetsuo looked at her thoughtfully. "Why not? We pay when we get back at end of second month, *hai*, but in meantime we do the work. Most important expedition of century. We it. We three."

"But—"

Dimov twisted his mustache. "If we stay down, then four go up. If only four go up they can send only four down. We pay later, all right."

"Of the four—if we do this—they could send down Goodman, Kazlovski and Carpenter."

"Six geologists on eight-man team? No. Other work is important. Though not as important as ours, of course."

"What do you think, Jean?"

The same possessive lust was now in her eyes. "They'll skin us alive when we get back."

Dimov shrugged. "But in the meantime—"

"The meantime, yes." They were silent some moments. "Chris is Commander. He won't let us to it."

"How can he stop us? How make us go?" Dimov asked. "If we are convinced that what we do is right?"

The female of the species jumped ahead to tactics. "When do we tell Chris? When do we tell Houston? There are different possibilities."

"Yes," said Dimov. "Time to go to bed. We think about it."

None of them slept well.

THE lunar night passed with unseemly haste. For the most part the colonists—except for Anaida—were confined to the domes, because Anaida's energy requirements, fighting against the cold night, were extravagant. Doris administered a discomfiting array of tests and spent hours analyzing the results—she had plenty to do. Chris did routine physicals, thought about Teiko and played chess with anyone who would play. Wang worked cozily in his lab. Gentili studied magnetographs, frequently shouting in joy or hoarse despair as he found evidence for or against one of his many theories. He steadfastly refused to confer with his envious colleagues on Earth. And the geologists developed their plot.

THE day followed the night and the colonists (except for Anaida, who now stayed in the *Red* dome reading Russian novels—her data had been telemetered and she had little to do) regained occupancy of the lunar surface. The geologists mapped an ever-increasing area, but it was obvious that they couldn't finish that job in the few days available, let alone collect the specimens they wanted. Frustration! And, alas, mutiny.

They chose their time as best they could—the evening of the second (Earth) day after their first lunar night.

"Chris," Dimov said, after dinner (simulated sirloin and almost-successful French fries). "And all of you might as well listen. I—I and the Miyasakas—are going to make a communication to Control that you should know about."

"I know," Chris said.

Three startled geologists.

"You—know?" asked Tetsuo tightly.

Chris nodded.

"Know what?" asked Anaida.

"You want to tell?" Chris asked Dimov.

"All right. But first—how you know?"

Chris nodded to Doris. "None of you will like this," she said, "but both domes have been bugged as part of the, ah, psychological aspect of the mission."

Consternation, then, and quite a hassle about the evil of invasion of privacy, the immorality of eavesdropping and such.

"Control's plan, not mine," Doris said. "I follow orders like everybody else. At least I hope everybody else does."

"Will someone please say now what this is all about?" Wang asked with great courtesy.

"You want to tell them?" Chris said again to Dimov.

"Yes. I tell. You have not informed Control of our—plan?"

"No."

"They not listening now?" Dimov cast a suspicious glance at the electronics bay.

"No. Doris and I thought it better this way. If you hadn't brought it up tonight, though, I would have. Houston needs to know."

"Know what, for Goddamn's sake?" asked Gentili.

"We don't finish our work here in the time we have," Dimov said. "So—we stay this time and go back with second crew."

"You cannot do that," Wang said.

"Who can make us go?"

Everybody looked at Chris. "I know you've thought about this a lot," he said. "I do, of course, order you to follow the mission plan."

"Of course. Your responsibility," Jean said. "But how can you enforce that order? We're outnumbered, but physical force won't work, will it?"

"Obviously not. How about moral force, then?"

"I tell you," said Tetsuo. "Is better for the mission—for knowledge, for science—if we stay. We know this place. We know exactly what we have done and what is to do. Is more efficient, *hai?* The others would take days to catch up. Is better—any way you look—if we stay."

"You want to call Houston and tell that to Goodman, Kazlovski, and Carpenter?"

"We know they won't like it," Jean said. "But they might even agree to it—in the best interests of the mission—of science."

"If you can sell them that you can sell surplus MERVs to the Friends' Service Committee. You do see this puts me on the spot?"

"Yes," said Dimov. "I know that idiom. We sorry. But must do what is right."

"What you think is right. It's mutiny, you know."

"Not mutiny. Uh—insubordination, yes."

"You quibble. We'd better get Houston on the horn. You ready to put your case?" They nodded. "Okay." Chris moved to the electronics bay and flicked the switch. "Houston from Tycho Base. Copy?"

"Five by five, Chris."

"Roger. Bob—we seem to have a problem here." Not the first time those words had been spoken.

"Go."

"Roger, Bob. Just one." He turned to the geologists. "Who wants it?" Dimov stepped forward and took the mike.

"Is Dimov here. We—the Miyasakas and I—we have suggestion for improvement of mission plan."

"Go ahead, Leo."

"Yes. Is like this. We—the Miyasakas and I—the geologists, we think we should stay here for the second month to continue our work."

Bob Cunningham's cool voice from Houston. "You've got to be kidding, Leo. You know you can't do that."

"That's what everybody says. But who is to stop us?"

"This isn't for me, Leo. I'm only capcom, you know. I'll call you back as soon as I can. And it won't be long. Houston out."

"*Da.* Tycho Base out."

IN TWELVE minutes the squawk box spoke. "Tycho Base from Houston."

Dimov took it. "Roger."

"Leo?" This was Manly Ryan, Program Director for Lunar Science. He was The Boss. He was a first-class scientist and a brilliant administrator. Dimov made his pitch and got the same answer, but this time with authority behind it. It was a harsh debate.

"I admit," Ryan said at one point, "that your argument is not entirely without merit. But you have Doctors Goodman, Car-

penter and Kazlovski to think about, don't you? Their approach isn't precisely yours. They're entitled to their shot at it, are they not?"

Three adamant geologists on the lunar surface.

"Ask them at least," said Jean.

"Good evening, Dr. Miyasaka. If I did and if they agreed to your plan—I'd overrule them and send them up anyway."

"They could refuse to come."

"Really, Dr. Miyasaka. Really. Ask them yourself. We've just patched into a conference call."

Dimov put the query.

"Really, Leo, with all due respect, you appear to be out of your mind." Goodman.

"We come up, of course, Dr. Dimov. But of course." Kazlovski.

"You can't be serious about this, Leo. We have our right to our work up there, too, and you know it." Carpenter.

"We'll be in lunar orbit at the appointed hour," Goodman said, "and you had better believe it."

"Makes no difference," Dimov said. "If we don't go up you can't come down."

"Yes we can. Who, as you say, is to stop us?"

"But—then we couldn't all get back up," said Dimov. "The modules are good for only two round trips."

"Precisely. That would make a small problem, wouldn't it? More geologists on the moon than could be gotten off. Interesting, isn't it?"

Ryan broke in. "All right, ladies and gentlemen, knock it off." Alicia Carpenter was the other lady. "Dr. Conway, do you have any suggestions? You're in charge there."

"I don't think they can be persuaded, Dr. Ryan. If they can't—there's not much I can do."

Ryan agreed. He threatened, pleaded with and cajoled the geologists. They remained adamant.

"We'll try something else," Ryan finally said. "This will take some time. You'll be hearing from us. Houston out."

"Will do no good," Dimov said. "Make no difference. Tycho Base out."

Again it was time for bed, but no one felt much like it. "I suppose we all realize that *Blue* and *Red* will be lifting off in short order. You know the schedule."

"Hai," said Tetsuo. "But those geologists won't be on board. Want to bet?"

"No bet," Chris said. "I suppose you know what you're doing to the boys in the back room and to everyone who had anything to do with formulating the program and picking the personnel—particularly you three—to implement it?"

"Look," said Jean. "We know our heads will roll when we get back down there. We know that. It makes no difference. You're not a scientist—you don't know."

"Medicine isn't a science, then?"

"You know what I mean."

"I think I go to bed now," Shau Wang said. "I would say one thing. I would like to stay here another month also. I could stay for a year and not do everything I want. But I go down anyway. So should you."

"There's no virologist coming up," Dimov said.

"No. My place will be taken by seismologist. So what is difference?" The geologists were silent. "So," Wang continued, "you simply want it all for yourselves. All what? Fame? Some kind of fame you get for this. Acclaim? You be acclaimed all right, but for wrong reasons. Honor? You dishonor our mission and those who selected you. Is all a can of worms."

"We know that none of you understand," Tetsuo said. "We know. No need to try to say more. We do what we have to. Bugs still on?"

"No," Doris said. "Now I've told you about them they've lost their point. My work is almost done anyway. No bugs."

TETSUO and Jean went behind their partitions and the others to their accustomed places. Chris moved his bag close to Doris's. They were conspirators. Chris had known about the bugs all along.

"Not true, Doris, that your work is almost done, is it?"

"Not exactly. I'm devious."

"You're a psychologist. Bugs still on, right?"

"I said I was devious." She inserted a plug into her handsome left ear, the one away from Chris.

"What do you think Ryan will come up with?"

"Pressure."

"Applied how?"

"We'll probably know before morning."

There was no provision on Mayflower 3 for any private circuit between the CO and Houston. No need for such had been anticipated. That oversight would be remedied on future missions.

Sleep, now, in the *Blue* and *Red* domes. Earth hanging up there and Tycho stretching off into invisibility in the night. The squawk box coming to life again just after two o'clock, Tycho Base local time. They would ordinarily leave the boxes off at night, but tonight they were, of course, on. Chris hit the mike as fast as he could.

"Tycho Base."

"Chris—old buddy—we have some news for you."

"Go."

"Sorry to wake you up, but we thought you'd like to know you now have two girls. Congratulations."

Chris had almost forgotten that Teiko was just about due. He knew guilt. "Thanks, man. She had twins, then?"

"No. By two I meant Teiko and the new one. They're both, as they say, doing fine."

"Can I talk to her?"

"She's sleepy, but she had it easy. We've got her on hold. Just one—Teiko?"

"*Hai.* Chris?"

Chris cut both squawk boxes and put on the phones. Privacy in a lunar colony is a sometime thing. Sometimes wanted and needed, sometimes not. Chris and Teiko had the fringes of it now for a few moments.

"I hold you," Chris said at the end. "Both of you."

"*Hai.* Is good. She look like you, if you could be Japanese. Good night, Chris."

Teiko knew nothing of the problem of Mayflower 3, having been busy and out of range of a squawk box for the last few hours.

There were congratulations, ordinary courtesy easing the tension for a few moments, and then the *Blue* and *Red* domes settled down for sleep again, Chris returning to his bag next to Doris.

"Good show, boss. Such good news. I'm happy for you. All three of you."

"Thanks, Doris." They edged with difficulty toward sleep. "I wanted it to be a girl."

"I know." *Of course,* Chris thought. *She's done every test on me there is.* "You need sleep now, boss." She had removed the plug from her ear. "We've a hard time coming up." She reached out, took his hand and held it until he was asleep.

III

AND they were all more or less asleep for something like two hours when the boxes came on again. Four thirty A.M. Ryan.

"Tycho Base from Houston."

Chris, disturbed from pleasant dreams, took the mike.

"Dr. Conway. I know the hour is inconvenient, but no more for you than for us. You all awake and listening?"

Chris looked around. Everyone was there. Disheveled mostly—but Wang looked as if he'd just come from the barber.

"Our motley crew is assembled, Dr. Ryan," Chris said.

"Roger. Okay, Dr. Conway. And congratulations on the birth of your daughter. Now, we're patched into another conference call. We're not about to play *Hail To The Chief,* but President McKinney will now speak to you. Mr. President—"

"Thank you, Doctor." That familiar voice. It was, Chris said later, as if there had been until then something stagy, arranged, about the Mayflower 3 contretemps. That voice squawked from the box into the dome and suddenly made it for real. His second shot on the air at a recalcitrant man on the moon and not much of a batting average going for him. In this case not man, but woman. "Dr. Miyasaka."

Jean knew this was for her—she was a U.S. citizen. Tetsuo was a Japanese national.

"Yes, Mr. President."

"I have been told about your—er, suggestions to improve the scientific program of Mayflower Three. To come directly to the point, Doctor, you are specifically and expressly ordered to return to Earth as scheduled. You are, as you know, a member of NASA, a member organization of IASA, and under certain acts of Congress you are under my direct command. I regret that it has become necessary to exercise that power of command. Do you acknowledge?"

Jean swallowed air. "I—we—hear you, Mr. President. And we hear you with respect," she said, shrugging. "But our minds are made up. We think it better—"

"Dr. Miyasaka." The President's voice was incisive. "It is not better. I have not made this decision alone—I am not a scientist. Your suggestion has been considered—almost from the moment you proposed it—by the top echelons of the appropriate scientists in IASA. You should know that the decision to stay with the original program is unanimous."

"Your decision, Mr. President. Ours is unanimous also."

"Three selfish and headstrong geologists against the consensus of the top scientists in your field?"

"We're here—they're not." Jean was flushed and her voice trembled.

I, little Jean from Santa Barbara, arguing with the President of the United States!

"You have your orders, Dr. Miyasaka. Dr. Tetsuo Miyasaka?"

Tetsuo took the mike. "Yes, Mr. President."

"Your Emperor, Doctor."

There followed a staccato exchange in Japanese, during which Tetsuo paled and began to tremble. Jean touched his hand and that steadied him some. Chris gathered from Tetsuo's tone that he was standing firm. This was correct.

That exchange ended and a Russian voice came on. The Secretary General of the Party, of course. Same story. Then President McKinney again.

"All right, Doctors," he said. "All of you have your orders from the leaders of your three countries. Our powers of persuasion appear to be ineffective. Are we to understand, then, that you intend to carry out this act of mutiny, though it means either suicide or murder?"

"We are not murderers," Dimov said, "and we do not intend to commit suicide."

"This mission, gentlemen—and lady—will continued as planned. In a short time we are sending to Tycho Base seven scientists/colonists, certainly including Doctors Kazlovski, Carpenter and Goodman. That will make eleven. Eight can return to lunar orbit, and thence to Earth. Thus, if you continue as you plan, you kill either yourselves or others. Murder or suicide. Good luck, Doctors Conway, Bennett, Wang, Gentili and Go-

lovin. Good morning." There was a click and that was that.

"Better think it over, Doctors," Ryan said. "They mean it. Houston out."

CHRIS studied the three geologists. "You're causing a bit of trouble, aren't you? And the real part of it hasn't started yet."

"It's a bluff," Jean said. "They wouldn't dare. It would be murder."

"Exactly," said Wang. "Just as the President said. And who will be the murderers, then?"

"Certainly not we."

"I think so," said Wang. "I think so. It will be, in any case, an interesting experiment, yes?"

"You're being cold-blooded about this," Tetsuo said.

Wang smiled. "I?"

Everyone was sleepy and in a bad mood and there was a sense of tension. There hadn't been much rest and there was work to do. Wang and Gentili, who had the duty, began to prepare breakfast. Wang, acting as if he'd spent a decade as head waiter at Maxim's, passed coffee and that helped.

"What if the President isn't bluffing, you guys?" Chris asked.

"Is not possible," said Dimov.

"As a matter of idle curiosity," Doris asked, "what would you do if you knew the other three were, in fact, coming up here?"

"I guess we'll find out in a couple of days when *Red* and *Blue* are on lunar trajectory," Jean said. "If they aren't aboard, we've won. If they are aboard and say they're coming down—"

"Yes," said Doris. "What if it's like that?"

"They land at their peril," Dimov said. "Because we don't go up."

"You mean," Doris went on, "that if they do come, when it's time to go back you'd just leave them here? Room on the bus for you but not for them? How would you make them accept that? How could you accept that?"

"They come at own risk. If they come down while we here they know they can't get up again. Simple."

"They know *some* three can't get up—that's right, Leo. But who will say which three? Women and children first? We've women, though no children. Geologists first, they being so important? We'll have six of those." This was Doris, laying it on them. "And how decide? Mortal combat? It would be mortal, all right."

There was a silence.

"Is a can of worms," Wang said. "Is not civilized. Is not worthy."

"I agree with you," Gentili said. "And in the meantime I have my own work, which I propose to do." He suited up and left the dome; back to the impact crater, where things were better ordered. Anaida began to clean up. Wang went to his devices and Doris and Chris sat there.

"For people wanting to spend a lot of time at the crater, you're losing a lot of it," Chris said. "You want to talk it over among yourselves—with no bugs?"

"What we care for bugs?" Tetsuo said. "Anyway we have now no secrets."

"You're right, Commander," Dimov said. "We waste time here. Let us go."

They suited up and left.

"WHY does Wang make better coffee than anyone else?" Chris asked. "We all use the same stuff." Chris was alone in the dome with Doris. Anaida read a Russian novel in the other dome. "Tea should be his bag—excuse the expression—not coffee."

"Class. Elegance. Style," said Doris. "Any ideas, boss?"

"One, anyway."

"Want me to split?"

"Well, you're the psychologist—maybe you should know," he said and told her what he had in mind. "Might be useful in the end," he said, "don't you think?"

"I had thought of something like that," Doris said.

"So what say? Go or no go?"

"Might as well try, boss. I don't envy you."

"Okay. Go into the other dome like the good girl you are—and be sure Anaida isn't listening.

Chris then cut off the link to the other colonists and spoke at some length to Houston.

"TYCHO BASE from *Red*. Copy, Chris?"

"Loud and clear, Chas."

"We enter lunar orbit in forty-eight minutes. *Moon* takes off in—let's see—six hours and thirty-one minutes. *Pepper* thirteen minutes later. Any problems?"

"Yes."

"Roger. Just want to put it on the record. Is your crew assembled?"

"Roger, Chas. We're here, but not for long. As you know. We'll be going over to the modules shortly. Some of us will, that is."

"Yes. Okay, you're all there copying. Now a word from our sponsor. I mean, just time for a few special messages. Directed to your three geologists, from our three geologists. All right, Alicia."

"I am Alicia Carpenter. I am a geologist. I am also an astronette. I will soon be coming down to the lunar surface. I am twenty-six years old, my hair is blond—"

"For Christ's sake, Alicia. The whole world is listening. (It wasn't.) All right. I suppose you all heard that down there. Control wants us to get it all on the record. Okay, Vlad."

"Roh-ghay," came the voice. "Is Vladimir Kazlovski, geologist. I address the Doctors Miyasaka and Doctor Dimov. I, too, will soon be on the lunar surface to study rocks. My hair is brown—"

Chas sighed. "All right! Goodman?"

"Ah, yes. Maximilian Goodman here. Geologist. My hair, as it happens, is black. It's okay, Chas, don't fret, I'll get on with it. We three, we happy band of fellow geologists, not to mention cosmologists, are putting on this show to remind Jean, Tetsuo and Leo that we are indeed here and that we shall be descending shortly. So get the modules up, Doctors, and don't be forgetful and remain behind. That would, as you understand, make a problem."

"All right, Chris. Time for you to begin your countdowns for *Moon* and *Pepper*. We'll be seeing you soon. Not you, Chris, but everyone else, I hope."

"Roger. Don't hold your breath. Tycho Base out."

LAST-MINUTE preparations were essentially complete. Suiting up was in progress. Chris looked at the three geologists.

"Your hour of decision is at hand," he said.

"Is wrong," Dimov said. "Our hour of decision was some days ago."

"Carpenter, Kazlovski and Goodman are coming down, you know."

"Bluff."

"I order you to suit up and prepare for liftoff."

"No go."

"Well. If the President, the Emperor and the Secretary can't move you I don't suppose I can. Okay. Doris—you, Gentili, Anaida, Shau—all set?" They nodded. "Good thing we all know how to fly, right?"

Gentili and Doris would go up in *Moon*, Anaida and Wang in *Pepper*, the modules they had landed in.

The President, always a most persistent man, came on once more. To no avail.

Chris took Doris aside. "I wish you were staying. I do. Give my love to Teiko and the baby."

"Of course. I want to stay, too. But—you know—"

Moon and *Pepper* lifted off faultlessly.

AND landed with seven scientists. Eventually all were together in the ***Blue*** dome.

"At least we'll lose weight," Goodman, who was plump, said. "Assuming we divide the rations equally."

"What other way is there to do it?" Dimov.

"Well, the eight of us who are supposed to be here could have what we're supposed to and you could have what was left."

"Would be nothing left."

"That's right."

Dimov and the Miyasakas looked at each other.

"Our energy supply is also for eight," Chris said. "We are eleven.

Therefore everything is cut down by more than a quarter. You had thought of that, of course."

"Did not think these three would be so foolish as to come," said Dimov.

"If you're trying to make us feel guilty," Jean said, "you're not succeeding."

"Why the troubled look on your face then?" Chris asked.

"We do realize that we've created a problem. But we've only done what we have to do. None of you can understand that."

"It's possible we might understand that," Maximilian Goodman said."We are geologists also. But I -we—will tell you one thing. The three of us intend to go back to Earth."

Chris knew where this would all lead in the end. Or almost all the way to the end. He was the commander and he had a secret weapon. He felt now totally alone and wished for Mayflower 1.

"We are supposed to be eight and we are eleven. The housing will be as follows: the six geologists in the *Red* dome, the rest of us here."

The rest were: Chris, commanding officer of an imperiled colony; Gladys Copperwaite, a psychiatrist from Cambridge (England); Donald Markel, an astronomer from Cambridge (Massachusetts); Ursula Louval, a psychoanalyst from Paris; and Aristotle Bozos, an unknown quantity from no one (barring Chris) knew where. No seismologist, as originally planned. No geophysicist. Instead, one additional head person plus Aristotle Bozos.

The ambiance in the domes was not as it had been and eleven to dine in one dome were too many. Chris decreed that the geologists would take their meals in the *Red* dome, the others in the *Blue*.

"Do you think it's wise to have them all together?" Gladys asked.

"Why not?"

"Well—that dome will be a little tense. Hostility, guilt, fear—"

"We'll leave it that way—at least until the lunar night begins. Things may get hairy then. We'll see."

"There's no way we can all make it, is there?"

"No way, Gladys. IASA can mount no rescue mission. The hardware isn't there."

"I suppose those three knew that."

"They knew it."

"What is Aristotle Bozos' function?"

"That's classified."

"Oh. Sorry, boss."

"Okay. I know your function, by the way. Good luck."

Gladys shrugged, ending the exchange.

The next days passed almost smoothly. The two teams of geologists worked separately during the day, but compared notes at night without rancor, almost as if they didn't know, with virtual

certainty, that all six would not return to Earth. Scientific interest, the thirst for knowledge, evidently could overcome animosity as well as fear of lonesome lunar death.

Aristotle Bozos mostly read and watched people. He was large, hairy, dark and amiable. He went out on the lunar surface from time to time to no apparent purpose. While the light lasted Mayflower 3 proceeded on an almost normal course. The colonists were hungry a good part of the time, but there were no serious complaints about that.

And the night came.

IV

DONALD MARKEL collated data and constructed charts that none of the others could understand. The six geologists studied their maps and theorized as tension built up in the *Red* dome. Maximilian Goodman looked through his notebooks and thought a lot—he was pleased because he was losing weight. Gladys Copperwaite and Ursula Douval arranged a cubicle in the *Blue* dome and they both—separately and together—interviewed everybody, particularly the geologists, in such privacy as was available. Their mission? To assist—if not to coerce—the Miyasakas and Dimov in the determination of a rational course of action when came time for liftoff, since all of them could not make it.

"Making any headway?" Chris asked them one night in the quiet of the *Blue* dome.

"None worth mentioning," Ursula said, "but at least I, we, keep confronting them with the problem. Goodman, Carpenter and Kazlovski are, of course, determined to survive the mission. As is right. Okay. But the other three simply won't talk about being left behind when the rest of us leave. They think autistically. They speak of a rescue mission."

"That's out of the question."

"Yes. And they know that somehow, somewhere. But they're not facing it. Not one of them."

"Tetsuo?"

"He's no better than the others—in spite of being Japanese. And he's in this with his wife, of course, which is one more complication. He's not about to take the hara-kiri route."

Chris asked, "Has it occurred to them that we can take everyone back but one?" Ursula's pupils dilated and Gladys gasped. "I guess it hasn't occurred to you either. How really curious it is."

"How?" asked Gladys.

"Come on. Ursula?"

"I don't see it."

"How brainwashed we are. The mission is more or less shattered, certainly not going according to plan, but apparently nobody in these two domes thinks about violating the plan still more in the

interest of saving a life or two. Curious, yes?"

"Yes. Okay, we give up."

The three were to one side, talking quietly. Markel and Bozos were playing chess, paying no attention. Bozos was holding his own, though Markel had once held master rating.

"The rocks."

"What about them?"

"Don't you get it? The automatic assumption is that the rocks go up when we do because that's part of the plan. *Moon* and *Pepper* are each to take up not less than one hundred and fifty pounds of selected samples, no more than a hundred and sixty pounds. The rocks will survive here, won't they, until someone can come to pick them up? The people can't. Jean weighs about one twenty-five. We can take her in one module, plus about thirty pounds of the more important specimens. Tetsuo and Dimov are both about one sixty. So—no rocks in the other module, one scientist. Simple."

Ursula, the psychoanalyst, was thoughtful indeed. "You're right, Commander. I cannot understand how we all missed that. We live on the edge of mystery. If not ignorance. And I'm an analyst. Holy Toledo. Will Houston go along with it?"

"They've ordered it."

"Was this your idea or theirs?"

"Both. I said it first, but they had put it together by the time I did. It is a rather obvious partial solution to the problem."

"I feel like an absolute idiot," Ursula said. "This changes things some, doesn't it?"

"It do, shrink, it do."

"One of the three has to stay. Die here, right?"

"No other way."

"Why didn't you tell Gladys and me earlier?"

"Orders. Ask one of your colleagues on Earth. We are rats in mazes, you know."

"All right. The one that's left—it will, I suppose, be one of the three?"

"I don't think one of the rest of us is going to play the sacrificial lamb. I know I'm not. I've got a daughter on Earth I haven't yet seen. The others—except the three—deserve to survive. Either of you want to volunteer?"

They shook their heads.

"So. Our ploy now is to put this to them and leave it to them to determine who goes. Right?"

"You're the doctor."

"You're the commander. Where is Bozos in this?"

"Classified. I can tell you one thing about him, though—he plays an expert Najdorf."

"Thanks a lot. Okay, Commander. I know how to get them all down."

"So do I. Have Dimov and Tetsuo fast down to eighty pounds each. That what you were thinking of?"

"Yes. But not seriously."

"No way. Not enough time."

"Anything else we can leave behind—to be picked up later with the rocks?"

"Negative. Rocks and people, notebooks and data, are about all we have for payload."

"I would very much like a cigarette now," Gladys said. "That's the first thing I'll ask for when we hit that carrier."

"Medics won't let you, you know that. What's on your mind?"

"The chess-playing Bozos, for one. I don't know what he's here for, but he's not doing much. Why didn't IASA simply leave him down there? Then we could all get down. Seems either cold-blooded or badly thought out."

"Think about it. No—it's time for sleep. I'll tell you. And don't assume IASA didn't think about this—they did. All the way to the top. A simple matter of precedent."

Silence for some moments. "I think I get it," Ursula said.

"We won't go to the planets, then to the stars—our great grandchildren won't—without discipline. We'll die."

"So IASA is deliberately sacrificing one scientist, one life—one life they could have saved—to make the point?"

"That's right. And I am—I think—with IASA. Anyway, that's the way it is."

They sat in silence, looking up at Earth, a blue-green moon up there—home. *I've two girls up there,* Chris thought. *I'll be there soon.*

"You're right," said Ursula finally. "It is time for sleep. Busy day for me tomorrow. Good night, Commander."

Lights out in both domes.

THE group session next morning (the lunar night continuing) added tension, doubt and uncertainty, not to mention conflict, to the mix already present in the first geological team. Markel didn't know what was going on and didn't much care—he had work to do and the chess with Bozos went well. Chris chose breakfast time, the day of the lunar dawn, to talk to everyone at the same time. He had asked the *Red* crew to bring in tables so they could breakfast together. The terminator had passed through—or over—Tycho during their night and the ambiance within the domes had changed again. Now there was bright light, the impact crater out there, all those rocks and work to be done.

"Most of you know this already," Chris said, over coffee, "but perhaps we should all have a look at it together. We lift off in six days. I wish Wang were here. He made better coffee." He cast an accusing glance at Bozos and outlined the situation.

He said at the end, "So one of us—one of you, because I'll be going back home—one of us will re-

main here. To join Nora Ivanovna and Stuart Stong. One of you three, I should say," he said, looking at the Miyasakas and Dimov.

"Why one of us?" Jean asked. "I'm not saying we do or don't accept that. But why?"

"Because I say so and because IASA says so. To be trite about it, you brought this upon yourselves. Well, there's no discussion about it. One of you three stays here—and which one is your decision. And I have nothing else to say. Questions?"

"What if we can't—uh—decide?" Dimov asked. Bozos threw him a speculative glance.

"Then I decide. But best you do it yourselves, right? I know you've been talking about it."

"*Hai.* We decide what to do, all right. But now, if meeting over, is work to be done."

"The meeting is adjourned," Chris said.

The geologists, all six of them, lost no time getting back to the crater.

"DO WE draw straws?" Dimov asked, the three of them talking together that evening.

"Maybe you and I," Tetsuo said. "We can't leave Jean here."

"That's a male chauvinist sexist remark," Jean said. "My status here is the same as yours. Precisely. Besides, Tetsuo and I are husband and wife. Can one of us leave the other here?"

"You are suggesting I volunteer to stay? I have a wife, too. In Moscow." Dimov looked up at Earth.

"No, I'm not suggesting that. It's going to be a tough decision any way it goes. Maybe we could leave Bozos. He doesn't do anything except play chess with Markel. He's not even a scientist, I don't think."

"I don't think he look like kind of man to make sacrifice," Dimov said. "Chris will say nothing about why he is here. If he is not here we all go back."

"Maybe you and I attack him in dome. Kill the bastard."

"Is something to think about."

"Then you'll spend the rest of your lives in jail," Jean said.

"Better than dying alone on moon, yes?"

"Could strangle him at night when all asleep. Solve problem."

"We're in plenty of trouble in any case when we get back," Jean said. "Murder wouldn't be much worse than what they've already got on us. And we'd live. Be paroled in old age—who knows?" She felt lightheaded. She couldn't stand the idea of being left there by herself and she couldn't think of leaving Tetsuo there. And she knew the chances were two in three that one of them would draw the short straw—if it came to that.

"Doesn't have to be Bozos," Dimov said. "Could be any other?"

The Miyasakas shook their heads. "No," Tetsuo said. "Is

wrong. Cannot do that. Must be this Bozos—or one of us."

They saw the correctness of this while trying not to see the incorrectness, let alone the difficulty, of picking on Bozos. Denial, evasion, and more denial.

"I guess Houston isn't lying when they say they can't mount a rescue mission," Jean said.

"They either can't or won't," Tetsuo said. "Same thing." He touched Jean's hand and between the three of them was a crystallization of understanding and appraisal. One of them would stay here, to die alone on the gray surface—unless they saw to it that someone else was stranded. Which meant Bozos. And they opted for Bozos rather than one of them. Simple.

Thus the line was drawn.

THE five in the *Blue* dome spoke together. Markel was interested only from the spectator point of view—the others were more involved. "They'll be after you," Gladys said, looking at Aristotle Bozos. "They can't figure why you were sent up here, one consequence of your presence being that one of them can't go back home."

Bozos smiled. "They've been after me," he said. "For two days. But they are—if I can say so without offense—outclassed."

"Why did IASA send you here?" Ursula asked.

"For the lesson, the demonstration—you understand," Bozos said.

"But for that they could at least have sent a scientist, a worker, not a—chess player."

Bozos was unflappable. "Yes. Is maybe one other reason also. Perhaps we find out tomorrow. Is liftoff, yes? We see."

Liftoff, yes. Time now to go back. Thirty-odd pounds of rocks and dust are already stowed in *Moon*. The module stands there, waiting only for five colonists and their personal gear to complete the payload. *Pepper* stands nearby. It is the last night, though still the lunar day. The only certainty is that someone here is going to terminate shortly.

There are two attempts on Bozos' life during the night. Bozos is mightily muscled—he is alert and he deals with these attempts with contemptuous ease. Besides, the forays are clumsy and awaken others.

Bozos's probability of survival was unimpaired when, at suit-up time, he and Chris entered the *Red* dome.

"Time to decide," Chris said. "Which of you stays behind?"

The other three geologists were already into their suits, anxious to be gone. Chris stood there, confident, in command, looking forward to seeing his two girls. It was too much and Tetsuo and Dimov were suddenly back in the cave.

They leapt at the same instant upon Chris, who had not expected this. No matter. Bozos glided smoothly forward, kneed Tetsuo into anguish and knocked Dimov halfway across the dome. He stood back smiling and drew a Colt .45 from a pocket of his jumper.

"That was a no-no," Chris said. "Bad judgment, besides. Mr. Bozos' function—uh—now becomes clear."

"The Enforcer."

The other two girls and Markel had come in from the *Blue* dome.

"That's right," Chris said. "The mission had to survive—most of it, that is. It was in jeopardy because of the situation you created. I, and IASA, foresaw violence. And I am not a—violent man. Hence, Aristotle Bozos, a recruit from a—well—different organization. Thanks, Aristotle." Bozos nodded. "And now you must make your decision."

"Cheap melodrama," muttered Tetsuo.

"But effective."

Tetuo shrugged. "We draw lots, Dimov and I." Dimov nodded.

"We all draw lots," said Jean. "I'm in this as much as you."

Dimov scribbled on three scraps of paper, crumpled them in his extended hand. Jean and Tetsuo each took one, uncrumpled them.

"I'm it," Jean said, blank-faced. "The rest of you had better hurry. We're a little late."

There was embarrassment and confusion all round, people milling back and forth. Then Chris and the rest of the *Blue* crew went back to their dome, began to suit up. Jean came running in, floating through the lunar gravity.

"Where's Tetsuo?"

They looked at her blankly. She went to the side of the dome then, near the air lock, and looked outside. Frantically, she began to unzip the lock. Bozos gently restrained her.

"He must have walked out just after we drew," she said.

Bozos nodded, but no one noticed it. Chris looked outside, saw the figure lying there.

"He is dead, Jean. Suit up now. We must get going."

Jean's face froze into a blank expression that would be there a long time. Gladys and Ursula propelled her into the other dome and helped her into her suit.

"*Blue, Red* and Houston from Tycho Base."

Three rogers at once.

"We're leaving the domes now. We're four minutes behind schedule, but we'll make it up."

"Roger. No sweat. Who—"

"Tetsuo Miyasaka is dead, about ten yards from the air lock. Jean got the black ball and Tetsuo took a walk. Tycho Base out."

And they left that place. Jean stopped, bent down, as they passed Tetsuo. She put her gloved hand on his cheek for a moment, then went on to the module. ★



WHEN Zozz, home from the pit, had licked his fur clean, he howled before John Bananas' door. John's wife, Teresa, opened it and let him in. She was a thin, stooped woman of thirty or thirty-five, her black hair shot with gray. She did not smile, but he felt somehow that she was glad to see him.

She said, "He's not home yet. If you want to come in we've got a fire."

Zozz said, "I'll wait for him—" and six-legging politely across the threshold sat down over the stone Bananas had rolled in for him when they had been new friends. Maria and Mark, playing some sort of game with bottle caps on squares scratched on the floor dirt said, "Hi, Mr. Zozz—" and Zozz said, "Hi—" in return. Bananas' old mother, whom Zozz had brought here from the pads in his rusty powerwagon the day before, looked at him from piercing eyes then fled into the other room. He could hear



GENE WOLFE

LA BEFANA

There were no wise men from the east. But a woman had arrived from another planet . . .

Teresa relax, hear her wheezing outpuffed breath.

He said, "I think she thinks I bumped her on purpose yesterday."

"She's not used to you yet."

"I know," Zozz said.

"I told her, Mother Bananas, it's their world and they're not used to *you*."

"Sure," Zozz said. A gust of wind outside brought the cold in to replace the odor of the gog-hutch on the other side of the left wall.

"I tell you it's hell to have your husband's mother with you in a place as small as this."

"Sure," Zozz said again.

Maria announced, "Daddy's home!"

The door rattled open and Bananas came in, looking tired and cheerful. Bananas worked in the slaughtering market and though his cheeks were blue with cold, his two trousers cuffs were red with blood. He kissed Teresa and tousled the hair of both children and said, "Hi, Zozzy."

Zozz said, "Hi. How does it roll?" And moved over so Bananas could warm his back.

Someone groaned and Bananas asked a little anxiously, "What's that?"

Teresa said, "Next door."

"Huh?"

"Next door. Some woman."

"Oh. I thought it might be Mom."

"She's fine."

"Where is she?"

"In back."

Bananas frowned. "There's no fire in there. She'll freeze to death."

"I didn't tell her to go back there. She can wrap a blanket around herself."

Zozz said, "It's me—I bother her." He got up.

Bananas said, "Sit down."

"I can go. I just came to say hi."

"Sit down." Bananas turned to his wife. "Honey, you shouldn't leave her in there alone. See if you can't get her to come out here, okay?"

"Johnny—"

"Teresa, dammit!"

"Okay, Johnny."

BANANAS took off his coat and sat down in front of the fire. Maria and Mark had gone back to their game.

In a voice too low to attract their attention Bananas said, "Nice thing, huh?"

Zozz said, "I think your mother makes her nervous."

Bananas said, "Sure."

Zozz said, "This isn't an easy world."

"For us two-leggers? No, it ain't, but you don't see me moving."

Zozz said, "That's good. I mean, here you've got a job anyway. There's work."

"That's right."

Unexpectedly Maria said, "We get enough to eat here, and me and Mark can find wood for the fire. Where we used to be there wasn't anything to eat."

Bananas asked, "You remember, honey?"

"A little."

Zozz said, "People are poor here."

Bananas was taking off his shoes, scraping the street mud from them and tossing it into the fire. He said, "If you mean us, us people are poor everyplace." He jerked his head in the direction of the back room. "You ought to hear her tell about our world."

"Your mother?"

Bananas nodded. "You should hear what she has to say."

Maria said, "Daddy, how did grandmother get here?"

"Same way we did."

Mark said, "You mean she signed a thing?"

"A labor contract? No, she's too old. She bought a ticket—you know, like you would buy something in a store."

Maria said, "Why did she come, Daddy?"

"Shut up and play. Don't bother us."

Zozz said, "How did things go at work?"

"So-so." Bananas looked toward the back room again. "She came into some money, but that's her business. I never ask her anything about it."

"Sure."

"She says she spent every dollar to get here—you know, they haven't used dollars even on Earth for fifty, sixty years, but she still says it. How do you like that?" He laughed and Zozz laughed, too. "I asked how she was going to get back and she said she's not going back. She's going to die right here with us. What could I possibly answer?"

"I don't know." Zozz waited for Bananas to say something and when he did not, added: "I mean, She is your mother, after all."

"Yeah."

Through the thin wall they heard the sick woman groan again and someone moving about. Zozz said, "I guess it's been a long time since you saw her last."

"Yeah—twenty-two years Newtonian. Listen, Zozzy—."

"Uh-huh."

"You know something? I wish I had never set eyes on her again," Bananas said.

Zozz said nothing, rubbing his hands, hands, hands.

"That sounds lousy I guess."

"I know what you mean."

"She could have lived good for the rest of her life on what that ticket cost her." Bananas was silent for a moment. "She used to be a big, fat woman when I was a kid, you know? A great big woman with a loud voice. Look at her

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION (Act of August 12, 1970: Section 3685. Title 39. United States Code). 1. Title of publication: GALAXY. 2. Date of filing: October 1, 1972. 3. Frequency of issue: bimonthly. 4. Location of known offices of publication: 235 East 45 Street, New York, N.Y. 10017. 5. Location of the headquarters or general business offices of the publisher: 235 East 45 Street, New York, N.Y. 10017. 6. Names and addresses of the publisher, editor and managing editor. Publisher: Arnold E. Abramson, 235 East 45 Street, New York, N.Y. 10017. Editor: Ejler Jakobsson, 235 East 45 Street, New York, N.Y. 10017. Managing Editor: Judy-Lynn Benjamin, 235 East 45 Street, New York, N.Y. 10017. 7. Owner: UPD Publishing Corp., 235 East 45 Street, New York, N.Y. 10017, a subsidiary of Universal Publishing and Distributing Corporation, 235 East 45 Street, New York, N.Y. 10017. Arnold E. Abramson, 235 East 45 Street, New York, N.Y. 10017; Robert J. Abramson, 235 East 45 Street, New York, N.Y. 10017; Peter J. Abramson, 235 East 45 Street, New York, N.Y. 10017; Allen & Company, 30 Broad Street, New York, N.Y. 10004; Clooney & Company, c/o Fiduciary Trust Company of N.Y., P.O. Box 924, Wall Street Station, New York, N.Y. 10005; S. D. Lunt & Company, 906 Marine Trust Building, Buffalo, N.Y. 14203. 8. Known bondholders, mortgagees and other security holders owning or holders owning or holding 1 percent or more of total amount of bonds, mortgages or other securities: None. 11. Extent and nature of cirulation. A. Total no. copies printed (net press run). Average no. copies each issue during preceding 12 months: 96,245. Single issue nearest to filing date: 95,989. B. Paid Circulation. 1. Sales through dealers and carriers, street vendors and counter sales. Average no. copies each issue during preceding 12 months: 40,349. Single issue nearest to filing date: 38,633. 2. Mail subscriptions. Average no. copies each issue during preceding 12 months: 11,253. Single issue nearest to filing date: 14,000. C. Total paid circulation: Average no. copies each issue during preceding 12 months: 51,602. Single issue nearest to filing date: 52,633. D. 1. Free distribution by mail, carrier or other means. 1. Samples, complimentary and other free copies. Average no. copies each issue during the preceding 12 months: 4. Single issue nearest to filing date: 10. 2. Copies distributed to news agents, but not sold. Average no. copies each issue during preceding 12 months: 43,717. Single issue nearest to filing date: 42,567. E. Total distribution (sum of C and D). Average no. copies each issue during preceding 12 months: 95,323. Single issue nearest to filing date: 95,210. F. Office use, leftover, unaccounted, spoiled after printing. Average no. copies each issue during preceding 12 months: 922. Single issue nearest to filing date: 779. G. Total (sum of E and F should equal net press run shown in A). Average no. copies each issue during preceding 12 months: 96,245. Single issue nearest to filing date: 95,-989. I certify that the statements made by me above are correct and complete. Lawrence C. Murphy, Circulation Manager.

now—dried up and bent over. It's like she wasn't my mother at all. You know the only thing that's the same about her? That black dress. That's the only thing I recognize, the only thing that hasn't changed. She could be a stranger—she tells stories about me I don't remember at all."

Maria said, "She told us a story today."

Mark added: "Before you came home. About this witch—"

Maria said, "—that brings the presents to children. Her name is La Befana, the Christmas Witch."

Zozz drew his lips back from his double canines and jiggled his head. "I like stories."

"She says it's almost Christmas and on Christmas three wise men went looking for the Baby and they stopped at the old witch's door and they asked which way it was and she told them and they said come with us."

The door to the other room opened, and Teresa and Bananas' mother came out. Bananas' mother was holding a teakettle. She edged around Zozz to put it on the hook and swing it out over the fire.

"And she was sweeping and she wouldn't come," Maria resumed.

Mark added, "Said she'd come when she had finished. She was a real old, real ugly woman. Watch, I'll show you how she walked." He jumped up and began to hobble around the room.

Bananas looked at his wife and indicated the wall. "What's this?"

"Some woman. I told you."

"In there?"

"The charity place—they said she could stay there. She couldn't stay in the house because all the rooms are full of men."

Maria was saying, "So when she was all done, she went looking for Him only she couldn't find Him and she never did."

"She's sick?"

"She's knocked up, Johnny, that's all. Don't worry about her. She's got some guy in there with her."

Mark asked, "Do you know about the Baby Jesus—do you, Mr. Zozz?"

Zozz groped for words.

"Johnny, my son—"

"Yes, mama."

"Your friend— Do they have the faith here, Johnny?"

Apropos of nothing Teresa said, "They're Jews, next door."

Zozz told Mark, "You see, the Baby Jesus has never come to my world."

Maria said, "And so she goes all over every place looking for Him with her presents and she leaves some with every kid she finds, but she says it's not because she thinks they might be Him like some people think but just a substitute. She can't never die. She has to do it forever, doesn't she, Grandma?"

The bent old woman said, "Not forever, dearest. Only until tomorrow night." ★

IS THE STAR OF BETHLEHEM OBSERVABLE TODAY?

ROBERT S. RICHARDSON
Associate Director, Griffith Observatory
Former staff member, Hale Observatory

WHAT was the star of Bethlehem? Is there scientific evidence for its existence? If so, what is this evidence? Can we identify the star with any celestial object known today? May we expect it to reappear as a visible star?

Answers can be found to all these questions. But no provable answers. We can only guess and conjecture—and continue the search.

One definite statement can be made about the star. Any suggestion concerning it is sure to anger somebody. I speak from thirty years' experience.

We—I—wish to present a new candidate for the identity of the star. Which does not mean that I myself believe we have a final answer. I don't. I emphasize again: proof is impossible.

What the Bible tells us about the star of Bethlehem is little. It is mentioned four times by Matthew, but without a word of description. No hint is given as to its position among the stars, its color or brightness. We generally think of the star as an exceptionally bright object, but we do so mostly because we are accustomed to seeing it brilliantly depicted on Christmas cards and other yuletide ornaments. Still, the chances are that the star was on the bright side or it would not have caught the notice of ground observers unequipped with telescopes.

It appeared at the time of Jesus'

birth. But when was Jesus born? Somewhere between 4 and 7 B.C. is as close as we can fix the date. For our purposes we shall assume it to be 5 B.C. The anachronism that Jesus was born in the time we call Before Christ originated with the Roman monk, Dionysius Exiguus *citca* A. D. 556. Known now to be wrong, his chronological system of reckoning has become so firmly established there is little hope of changing it.

If the year of Jesus' birth is uncertain the day itself is hopelessly lost. December 25 was selected in the fourth century principally as a matter of expediency. On that date the Romans were occupied with their annual orgy of the Saturnalia and hence less likely to be concerned with the activities of the Christians.

We can be sure the ancients were much more familiar with the constellations and other heavenly bodies than are people today. Today, because of smog and artificial illumination, many people scarcely know the stars exist except by hearsay. There were no astronomers to inform our distant predecessors, only astrologers. Astronomers today regard astrologers with contempt, the idea that we can foretell future events from the aspect of the celestial bodies being considered too ridiculous for serious discussion. But in biblical times astrologers were highly respected as Magi or "wise men," as usually translated in English scripture. The Magi were thoroughly familiar with the constellations and the stars that form them—they could even predict the motions of the sun, the moon and the planets with fair accuracy.

If we consider the star as a sign sent by God to announce the birth of Christ no explanation of its appearance is necessary. Once we admit the supernatural, anything is possible. If we limit ourselves to scientific possibilities, however, only three are worthy of attention.

1. Planets revolve around the sun in nearly circular orbits (for the purposes of the present discussion) in nearly the same plane, the farther from the sun the slower their motion. We see them from the Earth, which itself is in motion. The Earth's motion and other factors complicate the true situation enormously. Trying to disentangle a planet's true motion as seen against the background of the distant stars from its apparent motions was a problem that baffled astronomers for centuries.

But occasionally two or more planets appear close together on the celestial sphere and we say they are in "conjunction."* They are actually millions of miles apart, but if they are in nearly the same line of sight they give the impression of being virtually in contact.

* Rigorously defined: when they have the same right ascension or celestial longitude.

Early in the last century the German chronologist, C. L. Ideler, found Jupiter and Saturn to have been in conjunction three times in 7 B.C. He believed the Magi interpreted the first conjunction as the sign that started them on their way to Jerusalem. The last conjunction was so close that to a nearsighted person the light of Jupiter and Saturn might have seemed blended into a single body. Dr. Ideler convinced himself that this triple conjunction established the birth of Christ as 7 B.C.

A check by the Greenwich Observatory revealed Dr. Ideler's work was not as reliable as he had supposed. A triple conjunction of Jupiter and Saturn did indeed occur in 7 B.C. But even at their closest approach the two planets were separated by twice the distance of the full moon and so could not possibly have been mistaken for a single "star" or even touching or near-touching "stars," despite the technical "conjunction." The hypothesis of a close approach is ingenious but does not hold up when tested mathematically.

2. Could a star of Bethlehem have been not a star, but a bright comet? The most famous bright periodic comet is Halley's, which makes a close approach to the Earth and its sun, on an average, every 77 years. The various returns of Halley's comet have been determined by electronic computers back to 622.04 B.C. At practically every return there is a record of a bright comet in the right part of the sky at the right time. Halley's comet was last near us in 1910 and will next be nearest the sun on February 9, 1986. The coming apparition will be a poor one—the comet will not be favorably placed for observation.

One of the earliest and best authenticated appearances of Halley's comet occurred in 11 B.C. A bright comet is an unusual object, sure to arouse widespread awe and wonder. Although the date is four years before the earliest limit set for Jesus' birth, so much uncertainty is involved in this event that the discrepancy is not intolerably large.

But the fact remains that the evidence does not quite fit. Besides, the Bible reports successive reappearances of the "star."

3. The most satisfactory type of celestial object for the star of Bethlehem to have been is a nova or "new star." By a new star we do not mean one previously nonexistent, but simply one of which we have been unaware. It was there all the time but indistinguishable from myriads of other faint telescopic objects. For reasons unknown a star becomes unstable and, in perhaps a day or two, increases ten- or a hundred-thousand-fold in luminosity. After reaching maximum light it begins to fade and after a



HALLEY'S COMET

Mount Wilson and Palomar Observatories, 1910, 60-inch telescope

week or so sinks below naked-eye visibility. The flareup seems to be of a superficial nature, affecting only the outer layers of the star.

Such novae are not rare objects—about five are picked up every year and probably a dozen more go undetected. Usually we see only those close enough to attain naked-eye visibility.

Much rarer objects, probably of a different nature, are the supernovae, which undergo sudden increases in luminosity of perhaps a billion-fold. Observations in the Milky Way and other galaxies indicate they occur at the rate of one in 356 years on the average, although some oriental scholars find an average of one every 156 years.

Supernovae have been recorded with certainty in the Milky Way in A.D. 1054, 1572 and 1604. Around maximum light they were so bright as to be visible in full daylight. (The supernova of 1054 has been identified from Chinese and Japanese records with the object in Taurus we call the Crab Nebula. It seems incredible that there is not a single reference to this brilliant object in surviving European records of that period.)

A nova fits all the conditions for the star of Bethlehem. It appears unexpectedly. Occurring sufficiently close to Earth, it would have been sure to attract the attention of the Magi. It rapidly fades from sight—and this would account for its invisibility today. Only one slight difficulty is involved—until recently we had no record of a nova at the time of the birth of Christ.

In 1966 a list of 90 novae and possible supernovae—derived from oriental sources between the fourteenth century B.C. and 1690**—was published. Of special interest are Numbers 8 and 9, recorded in 5 B.C. and 4 B.C., respectively. No position is given for Number 8 except that it originated in the southern constellation of Capricornus. Number 9 occurred in Aquila at right ascension (RA) $19^h\ 50^m$, declination (Dec.) 10^o N.

MATTHEW tells us that ". . . the star, which they saw in the east, went before them, till it came and stood over where the young child was." This would mean that the star of Bethlehem was at the zenith of Bethlehem. To be in the zenith the declination of a star must be the same as the latitude of the place, which is 31°.6 for Bethlehem. This immediately rules out nova Number 8 in Capricornus, which is much too far south of the celestial equator.

Nova Number 9 is more hopeful with a declination of 10° N. When highest in the sky at Bethlehem, or on the meridian, it would be 26° south of the zenith, or at an altitude

**Xi Ze-zong and Po Shu-jen, translated from the Chinese by K. S. Yang, *Ancient Oriental Records of Novae and Supernovae.* (*Science*, p.597, 4 November 1966.)

of 64° above the horizon. But eye estimates of altitude—even by experienced observers—are not trustworthy. Most people will describe an object with an altitude greater than 50° as being "overhead."

Now, the basic reference point of astronomers is the vernal equinox, corresponding to Earth's zero meridian through Greenwich, England.

However, the celestial "meridian" is continually moving westward. We call this westward motion "precession." and it results from the gradual change in the direction of the Earth's axis of rotation in space, akin to the wobbling motion of a spinning top. It arises from the gravitational action of the sun and moon on the equatorial bulge of the Earth, which like a top is also spinning. At present a line through the north pole along the Earth's axis extended passes near the star Alpha Ursae Minoris at the end of the handle of the Little Dipper. We call this star our Polaris. But it was not always so. Four thousand years ago Alpha Draconis was our Polaris and in A.D. 13,500 it will be the bright star Vega. After 25,700 years the Earth's axis will have come full circle and returned again to Alpha Ursae Minoris.

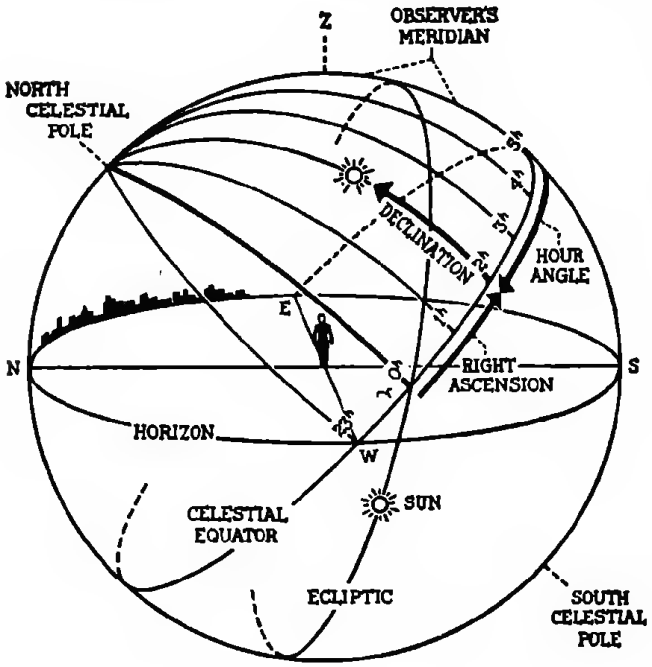


DIAGRAM shows how astronomers locate a celestial object by its hour-angle and declination. Like enormous hoops, the hour-circles travel across the sky from east to west. Point where sun crosses celestial equator (about March 21) indicates the prime hour-circle through the vernal equinox. Note derivation of right ascension.

—From *A Brief Text in Astronomy, William T. Skilling* and *Robert S. Richardson,* Holt Dryden, 1958

As the Earth's axis shifts position there is a corresponding change in the position of the constellations and the seasons in which we are used to seeing them. Today we regard Orion as a winter constellation and Scorpius as a summer constellation, but in A.D. 15,000 this situation will be reversed. The constellation of the Southern Cross is now visible from only the southernmost part of the United States, but there was a time when it was visible as far north as the Aleutian Islands.

How did the constellations appear from Bethlehem in 4 B.C. as compared with today? In par-

ticular, how was the position of the alleged nova in Aquila affected?

Calculations show that precession worked the wrong way to be helpful, moving the nova farther toward the south. In 4 B.C. it would have been 27° from the zenith of Bethlehem, hardly "overhead" to such sophisticated observers as the Magi.

Thus we seem to have exhausted all the possibilities. Not a conjunction of the planets, not Halley's comet, not the doubtful record of a nova satisfactorily fulfills the required conditions.

That brings us, at last, to my own proposal.

THE ordinary novae we have mentioned are often called "flash" novae. They flash to prominence, then fade slowly back into obscurity. Other objects are known, however, called recurrent novae which have undergone two, three and four flareups. Their outbursts occur irregularly at intervals of several decades and have a smaller range in luminosity than the ordinary variety.

Could the star of Bethlehem have been a recurrent nova?

The most likely possibility for this conjecture is an object in the little circlet of stars forming the constellation of Corona Borealis, the Northern Crown. The first known outburst of this object called T Coronae Borealis (T Cor Bor) was observed on May 12, 1866, when it reached second magnitude, about the same brightness as the brightest stars in the Big Dipper. (A star barely visible to the unaided eye under favorable conditions is sixth magnitude; a bright star such as Vega is 0.14 magnitudes; the planet Venus at maximum brightness is magnitude 4.4 and visible in full daylight if you know exactly where to look.)

The second outburst of T Cor Bor was first seen on Feb. 9, 1946, when its magnitude was 3.2. On both occasions the star fell below naked-eye visibility after about a week. But the light curves from telescopic observations for both 1866 and 1946 were remarkably similar.

The 1950 position of T Cor Bor was RA 15h 57m, Dec. 26°. 1 N. How does precession affect the position of objects in this part of the sky? Using an approximate formula we find RA (5 B.C.) 14h 35m, Dec. 31°.7 N. The latitude of Bethlehem is 31°.6. Thus in 5 B. C., T Cor Bor would have passed through the zenith of Bethlehem. (The exact agreement between the latitude of Bethlehem and the declination of T Cor Bor in 5 B. C. is purely accidental and of no significance whatever.)

Since we used the approximate instead of the rigorous formulae in calculating the precession for T Cor Bor, it is desirable to have some check on our results. Fortunately

we have an easy test. Theory shows that precession changes the RA, Dec., and celestial longitude of an object, but not its celestial latitude. That is, the celestial latitude of T Cor Bor in 1950 should be the same as its celestial latitude in 5 B. C.

Applying this check we find,

Celestial latitude T Cor Bor (1950): +45°.3.

Celestial latitude T Cor Bor (5 B.C.): +44.0—which is as good agreement as we can expect from such rough work.

KNOWING the right ascension of T Cor Bor in 5 B. C., allows us to make a guess at the date of Jesus' birth.

Suppose Jesus were born at 10 P. M., local apparent time, when T Cor Bor at RA $14^h\ 35^m$ was on the meridian of Bethlehem. This would make the RA of the sun 14h 35^m, which would have been in early June. But, as mentioned earlies, there is no actual evidence to indicate that Jesus was born in winter rather than summer.

Finally, the appearance of a new star in Corona Borealis, a constellation representing a crown or halo, might have had a symbolic effect in heralding the birth of the new king.

If . . . If . . . T Cor Bor is the star of Bethlehem, then this famous object may still be observed today. With a suitable star chart it can be identified as a faint star (magnitude 10.0 currently) in the field of a three-inch telescope.

Will T Cor Bor blaze up again? I should say it almost certainly will. When? Tomorrow night? Next year? The next century? Nobody knows.

IS THE STAR OF BETHLEHEM OBSERVABLE TODAY? A COMMENT

Rev. Ronald E. Royer

St. Frances Catholic Church
Azusa, California

THE Christian belief that the Supreme Being entered His natural world to raise us above our natural condition certainly leaves room for God to use a natural phenomenon to announce this supernatural event. Though it is easier to describe the Star of Bethlehem as a total miracle, to do so does not seem quite in line with the nature of the total event of the Incarnation, which is a fusion of the natural and the supernatural. So I find Richardson's review of this problem as orthodox as it is resourceful.

As a parish priest I am an amateur in Scripture research as well as in astronomy. But my readings do indicate that the non-Jewish world knew of the Jewish expectation of a Messiah because of the ancient prophecies. The "Magi," who lived somewhere to the East were among those awaiting some sign of the coming of the Messiah. What better sign for them than a new star in the heavenly crown, Corona Borealis? We know that a crown was a sign of kingship at that time since Jesus Christ received one for His proclaimed kingship, though it was of thorns. Unfortunately we do not know how these Magi read the circlet of stars—but if they did read it as a crown the new star's position in the constellation as well as its declination would be most significant for them. So Richardson's nomination of T Cor Bor stands this test pretty well.

But how does T Cor Bor stand the more difficult test of the second appearance recorded by Saint Matthew, Chapter 2, vs. 9? It fails perfectly. T Cor Bor just isn't visible long enough. Of course the other candidates for the Star of Bethlehem fail this test also, but not as perfectly as T Cor Bor. From this and the action of the star leading the Magi to the dwelling of the Holy Family, those who do admit of a natural celestial phenomenon's starting the Magi out on their journey tend to believe that the second appearance was miraculous, pure and simple.

But as I studied the light curve of T Cor Bor (page 80) I became intrigued by the secondary maximum some four months after outburst. In our very limited experience with recurrent novae—and especially in this area—this secondary outburst has not reached naked-eye visibility. But could it vary—could it have done so for the Magi? If God willed, yes. But a variation in its natural cycle may also be possible.

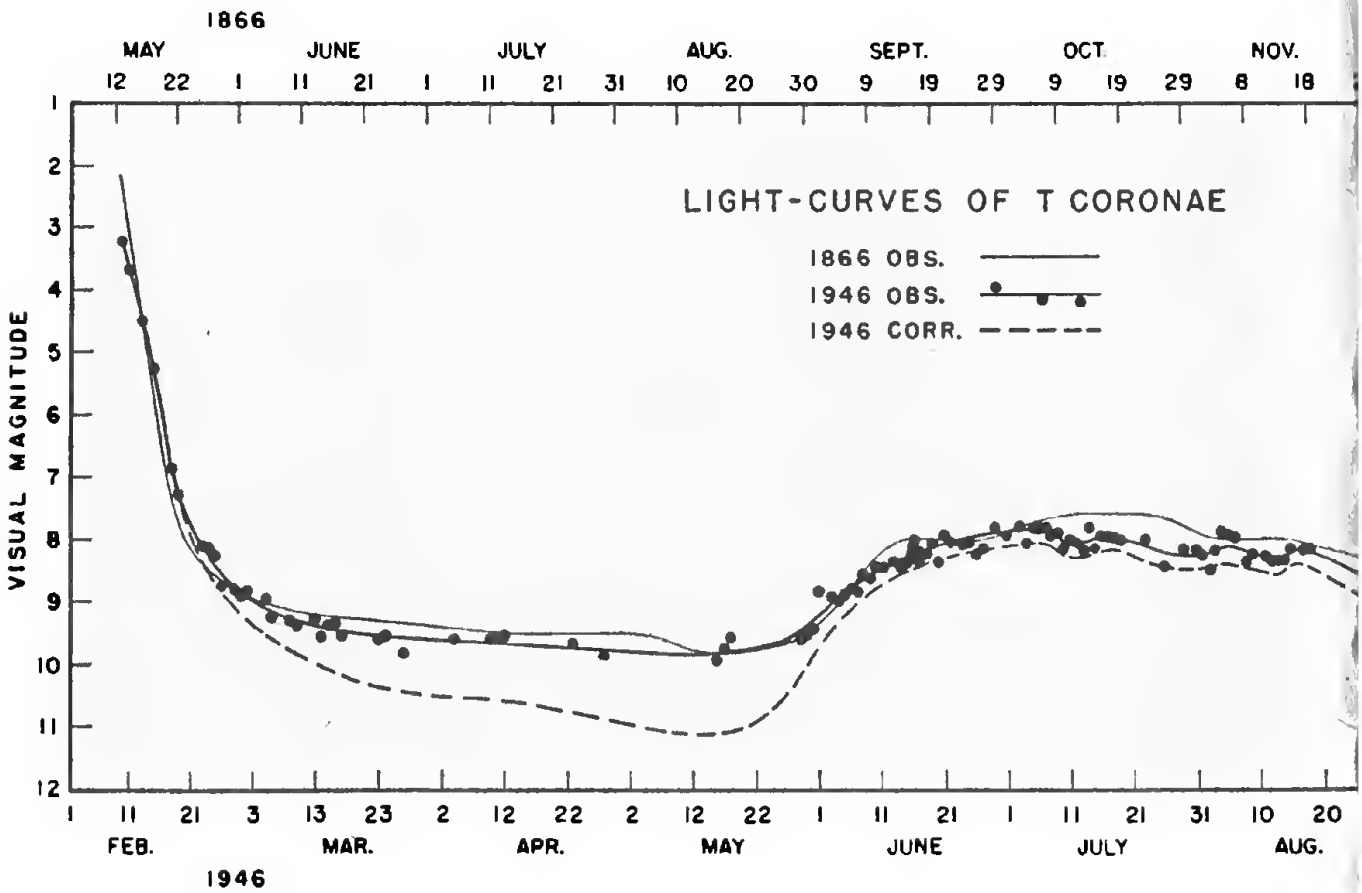
Assuming then that T Cor Bor did again reach naked-eye visibility for the Magi, the four-month interval fits well with the preparation and travel time required for the Magi. We know that they came no sooner than forty days after the birth of Christ since the purification period Saint Luke talks about is forty days (Luke 2:22). Herod's massacre of the Innocents actually indicates an arrival of several months after the birth of Christ.

So we still have T Cor Bor in the running, but how about the star's having led the Magi to Bethlehem? Matthew 2:5 tells us that the ancient prophecies did that, not the star. Its reappearance only confirmed that they were on the right track.

The real difficulty here is that Matthew seems to have the star actually leading to the dwelling of the Holy Family, an impossibility for any extraterrestrial object. If T Cor Bor is our Star of Bethlehem we

have to read Matthew 2:9 as a layman's description of a zenith passage. In that case, it is not too far-fetched to consider that the inhabitants of Bethlehem pointed out to the Magi the exact place where lived the child whose birth had caused such a stir a few months back.

Maybe I am stretching the biblical text a little bit to fit T Cor Bor into this new theory. Please excuse me, but I have made many estimates of the brightness of T Cor Bor in the past nineteen years for the American Association of Variable Star Observers. I was very much excited when Robert Richardson talked to me about its candidacy—could I all this time have been seeing the actual star of Bethlehem? At any rate, those who look closely at the stars and think about them may still be led to adore the Lord as were these mysterious heaven-gazers from out of the East.★



THE hairline represents the mean light-curve as observed in the year 1866. The heavy line is the mean light-curve for the 1946, the dots representing the observational points. The dashed line is the 1946 curve corrected for an M-type companion of magnitude 10.2. The first point, for February 9, is an observation by Armin Deutsch.—*Publications of the Astronomical Society of the Pacific*

The Birth of Environmental Quality Magazine



Aside from naming some of our more celebrated contributors such as Ray Bradbury, Paul Ehrlich, Jacques Cousteau and Paolo Soleri, and mentioning a few interesting ideas like solar energy, organic burial, Wankel engines and cryogenic sperm banks, there is very little that space permits us to say about the environmental struggle – except we're in it up to our gas masks.

Send for your Complimentary Copy Now!

ENVIRONMENTAL QUALITY MAGAZINE 6031
10658 Burbank Blvd. / North Hollywood, Calif. 91601

SPECIAL TRIAL OFFER!

12 issues – $6.00

You may cancel within 15 days after receiving your free copy – and owe nothing.

Name _____
(Please Print)

Address _____

City _____

State & Zip _____

☐ Bill Me ☐ Check Enclosed





FRANK HERBERT

PROJECT 40

PART TWO

WHAT HAS GONE BEFORE

Story opens with undercover agent CARLOS DEPEAUX trying to blend with southeast Oregon scenery while keeping a careful watch on an innocuous farmhouse through powerful binoculars. Some distance away his fellow agent, a girl named TYMIENA, keeps the farm under electronic and radar surveillance from a specially equipped van camper. Ostensibly CARLOS and TYMIENA are nature-loving husband and wife on a camper

vacation—CARLOS is a birdwatcher, if anyone should ask.

He is, however, chilled by a growing awareness that he is the only life form—other than plants—in the vicinity of the farm. There are no birds, no animals small or large, not even insects around. Adding to his unease is the knowledge that his predecessor, PORTER, vanished without a trace while watching this same lack-life farm. Carlos knows, of course, that the farm's proprietor, NILS HELLSTROM, is no farmer, but is noted for making documentary films about insects. He is also suspected of being in the process of developing a superweapon that would give world dominion to any nation possessing it—and no one is quite sure of HELLSTROM'S loyalties. The weapon is described as a "toroidal field disruptor," is capable of altering matter over great distances and its existence has been deduced from specifications that a HELLSTROM aide inadvertently left in an MIT library. The specs were labeled: Project 40.

CARLOS and TYMIENA are employed—as was PORTER—by a Government "Agency" so top-secret it has no other name. It is headed by a man equally nameless, who is responsible only to the President—not even to God. His aide is totally ruthless, physically powerful, top-level I.Q. DZULE PERUGE; operations director is a nonentity named JOSEPH MERRIVALE.

What the Agency does not know is that Hellstrom heads a 300-year-old cult of humans who have patterned their culture, genetics and thought processes upon those of insects as a survival measure. Bred for intelligence, cult members have infiltrated society at large at all levels of authority, including branches of Government.

A small nation of HELLSTROM'S subjects lives underground in the honeycombed hill—or Hive—under HELLSTROM'S farm. The Hive's main objective for centuries has been to become impregnable. Its weaponry and science surpass anything found outside. Each individual in it is an expert, bred for a single specialty for generations. Life expectancy in the Hive is several times the "wild" human lifespan.

CARLOS and TYMIENA are captured by the Hive and the Agency sends a small task force headed by DZULE PERUGE himself, seconded by top agents EDWARD JANVERT and his girl, CLOVIS CARR, to investigate the latest disappearance.

XI

General memo from Joseph Merrivale: Whether Porter, Depeaux and Grinelli are actually dead is unimportant for these present considerations. Although we presume they are dead, nothing is changed if they are only missing. We have learned that Hellstrom will not hesitate to act against us. In view of his frequent overseas trips, ostensibly in pursuit of his insect films, a renewed effort to assess his foreign contacts is indicated. His ruthless actions bear a certain familiar stamp. On the home front the problem is more complex. Because we cannot admit

the purposes that prompted our investigation we cannot now proceed through ordinary channels. Suggestions on alternate procedures will be welcomed. Destroy this entire message immediately after reading. This is mandatory. Do it now.

(Appended comment by Dzule Peruge with cover—for the Chief's eyes only: *Nuts! I'm opening several straightforward inquiries. I want an examination of that film company along every avenue we can open. My approach in Oregon will be to launch a missing-person inquiry through every agency I can reach. FBI assistance will be solicited. Your help there would be appreciated.* —Dzule.)

JANVERT did not bring up the subject of their companions in this project until he and Clovis were on the plane headed west. He had chosen seats well forward of the others and on the left side. The window beside him gave a good view of a sensational sunset over the left wing, but he ignored it.

As expected, he and Clovis had been ordered to assume teenage guise—and Nick Myerlie, whom both of them considered to be an ineffectual ass, had been named to cover as their father. What none of them had expected was that Janvert would be selected for the number-two spot in charge of the outing.

He and Clovis held their heads close together, speaking in barely audible whispers.

"I don't like it," Janvert said. "Peruge will hit the ceiling and choose someone else once we're in the field."

"What good would that do him?"

"I don't know, but you wait and see. Tomorrow at the latest."

"This arrangement could be in recognition of your sterling qualities."

"Shit!"

"Don't you want the second spot?"

"Not on this merry-go-round." His lips set in a stubborn line. "This one's a nasty."

"You think they're looking for a scapegoat?"

"Don't you?"

"It's possible. How do you get along with Peruge?"

"Not badly, considering."

"Considering what?"

"The fact that he doesn't trust me."

"Eddie!"

One of their teammates took this moment to wander past, headed for the forward toilets. The teammate was an ex-gunner from the Vietnam war (he called it "Nam") named Daniel Thomas Alden and everyone called him DT. Janvert remained silent while DT passed, noting the hard, youthful face, the square and deeply tanned line of jaw. There was a white scar at the bridge of his nose and he affected a flight cap with transparent green visor that imparted a dark green cast to his face. Janvert suspected DT of being a spy for the brass. Rumor had it he was shacking up with Tymiena, and Janvert found himself suddenly wondering what the younger man was thinking now.

As he passed, DT glanced at

Janvert, but gave no sign of recognition.

Janvert whispered, "Do you suppose DT enjoys this work?"

"Why?"

"You'd think he would find it a bit more constraining than an actual war—not as many chances to kill people."

"Sometimes you're too damned bitter."

"And you shouldn't be on this assignment at all, honey," Janvert said, "Why didn't you beg off?"

"I thought you might need someone to defend you."

"The way you did last night?"

She ignored the allusion, asked, "Have you heard the talk about DT and Tymiena?"

"Yes. I almost feel sorry for him."

"You think she's—gone?"

"I don't want to think about it—but yes, I do."

"But why? Couldn't they all just be—held somewhere?"

"I can smell death in this one. Those missing people were the shock troops. You expect casualties with shock troops."

"What are we then?"

"With Peruge along? I don't know. I'll tell you when I find out how he deploys us."

"Front line or rear?"

"Right."

"Aren't they going to serve dinner on this flight?" she asked.

"Those stewardi are too interested in getting our 'elders' drunk."

"That's one of the things I hate about playing the kiddie role," she whispered. "I can't ask for a drink."

"I hate the makeup," he said. "I'll bet they don't feed us before Nebraska."

"This is a bean-and-cod special," she said. "They'll give us fishballs and haricot. Are you still feeling low?"

"Honey, forget some of the things I said last night. I was feeling like the very end."

"To be strictly accurate, there were two of us in that mood. It's probably the phase of the moon."

"I still don't know a good reason why I was named Number Two on this case—do you?"

"None I'm sure of." And almost as an afterthought: "The others are pretty old."

"All the more reason—I mean, why would they want a younger agent in command?"

"Youth must have its day," she whispered and bent to nibble his ear. "Knock it off, darling. The old goat right behind me is trying to eavesdrop."

Janvert knew better than to glance back at once, but he straightened presently and glanced around the crowded aircraft. The lights were on now and it was dark outside—each window was a patch of black. The white-haired old man behind Clovis was reading *Time* while drinking a whiskey over ice. He looked up as Janvert turned around, but immediately went back to his magazine and drink. Janvert could not recall ever having seen him before—still, the old man could be spying for someone.

Angrily Janvert sank back into his seat, bent close to Clovis. "Honey, we've got to break away from this racket. There must be a

country somewhere that would be safe for us. There must be some place where the Agency can't reach us."

"The other side?"

"You know what that would mean—more of the same only in a foreign language. No—we need a nice tidy little foreign country where we can blend into the population without being noticed. It has to exist somewhere on this dirty planet."

"You're thinking about DT and Tymiena."

"I'm thinking about you and me."

"He's listening again," she whispered.

Janvert folded his arms and sank into a sullen silence. It was going to be a bitch of a flight all the way to Portland. He resigned himself to it.

Later, when Nick Myerlie came past and bent over them to ask: "You kids getting along okay?" Janvert merely growled at him.

> *Inter-Hive Memo—Project 40:* The heat problem remains severe. Our latest model melted before becoming fully operational. Secondary resonance was measurable, however, and it was climbing toward the expected peaks. If the proposed new cooling techniques are successful we should get our first fully operational tests within the month. The test is sure to cause manifestations that will be noticeable Outside. At the minimum we can expect a new island to appear in the Pacific Ocean somewhere off Japan.

PERUGE caught a late flight out of Dulles and was forced to accept coach, which compounded his annoyance over the conference with Merrivale. The Chief had insisted he have that meeting, however, and Peruge had seen no good way to avoid it. He had driven over to Operations after preparing the way with a call and had met Merrivale in the latter's office. The gloves had been off right from the beginning.

Merrivale had glanced up without change of expression as Peruge strode into the office. There was a pinched up, frightened look around Merrivale's eyes and Peruge thought, *He knows he's been nominated for patsy.*

Peruge seated himself across from Merrivale in one of the big leather chairs, indicated a folder on the desk. "You're reviewing the reports, I see. Found any holes in them yet?"

Merrivale obviously thought the question put him at a disadvantage. "My reports are precisely fitted to the circumstances for which they were made."

The pompous bastard!

Peruge was well aware that his presence annoyed Merrivale. It always did. Peruge was physically a big man—many said he would be gross if he ever let himself go to fat. But he possessed a softly sinister grace of movement which, coupled with his size, never failed to irritate Merrivale.

"The Chief wanted me to ask you why you gave second spot on the assignment to that little shrimp, Janvert," Peruge said, needling Merrivale again.

"Because he's long overdue for responsibility."

"He's not trustworthy."

"Nonsense!"

"Why didn't you delay and let me appoint my own second?"

"No sense in delay. The briefing had to proceed."

"So you rushed into another mistake," Peruge said. His voice conveyed a sense of calm, superior knowledge. That mention of the Chief had been telling. Merrivale's face darkened.

"Why are you going out to Oregon yourself?"

"The answer to that is obvious, given the situation."

"What situation?"

"Three of our best people have been lost."

Merrivale nodded. Then: "You spoke of something important to discuss with me. What is it?"

"Several things. First, that memo you circulated indicated that we were unsure of our next step in this case. The Chief was rather upset by that."

Merrivale actually paled.

"We—the circumstances—"

Peruge interrupted as though he hadn't heard Merrivale. "Second, we are concerned about the instructions you gave those three agents. It seems strange to us that—"

"I followed my bloody orders to the letter!" Merrivale said, slamming a hand onto the folder.

The story of his life, Peruge thought. He said, "There are rumors that Tymiena didn't like this assignment."

Merrivale sniffed, managed to look unimpressed. "They always object and then talk about it behind my back. What good are rumors?"

"I got enough hints to convince me she may have had a valid objection to the way things were being handled. Did she talk about specific objections."

"We talked, yes. She thought we should go in openly after Porter—make a more official approach."

"Why?"

"It was just a feeling she had, nothing more." Merrivale made feeling sound like a peculiar female foible.

"That feeling appears to have been accurate. You should have listened to her."

"She was always having those crazy hunches," Merrivale objected. "She didn't like working with Carlos, for one thing."

"So she did have specific objections. Why did she object to Carlos?"

"I'm only guessing, but I presume he has made objectionable advances to her at some time. At any rate, that wasn't the kind of quibble we tolerate in the Agency. They know the work they're called upon to do and what it may entail."

Peruge just stared at him. Merrivale's face was an open page, his thoughts written across it for anyone to read: *They're blaming me for these losses. Why are they blaming me? I only did what they told me to do.*

Before Merrivale could begin giving voice to these thoughts Peruge said, "There is pressure from farther up the line and we're going to have some explaining to do. Your part in this comes in for particular questioning."

MERRIVALE got the whole picture now—there was pressure from higher up and someone was being. prepared as sacrificial goat. That goat was named Joseph Merrivale. The fact that he had successfully protected himself on many similar occasions did not ease his pain at finding himself today's target.

"This is not fair," Merrivale growled. "It is simply not fair."

"I'd like you to recount as much as you remember of your last conversation with Tymiena," Peruge said. "Everything."

Merrivale took a moment to regain his composure. Then: "Everything?"

"Yes."

"Very well." Merrivale's mind was neatly organized and could reproduce most conversations from memory. He was hampered this time, however, by the necessity of screening every scrap through a self-protective analysis. He lost his fake British accent as he proceeded. Peruge found this amusing.

Presently Peruge interrupted: "So she went looking for Carlos."

"Yes. Carlos was in Archives, I believe." Merrivale wiped perspiration from his forehead.

"It's too bad we don't have her here to question," Peruge said.

"I've told you everything."

"Oh, I believe you," Peruge said. He shook his head. "But there still was something. She had read the reports and—" He shrugged.

"Agents do die in the line of duty," Merrivale argued.

"Of course, of course," Peruge said. "Such occurrences are perfectly ordinary."

Merrivale scowled, obviously thinking the facts were being twisted to damn him.

"Carlos had no similar objections?" Peruge asked.

"None whatsoever."

Peruge pursed his lips in thought. Damnable business! So the little clerk had finally bought it. His legendary caution had failed him at last. Unless that caution had somehow pulled him through. Carlos might still be alive. Somehow Peruge did not give much weight to this possibility. The first pawn had been taken, then the second and the third. Now it was time for a more powerful piece.

He asked, "Did Carlos and Tymiena quarrel about this job?"

"Perhaps."

"What does that mean?"

"They were always snapping at each other. Who noticed after a while?"

"And we don't have them here to ask," Peruge mused.

"I don't need reminders of that."

"Do you recall what Carlos said when you last saw him?"

"Certainly. He told me he would report within forty-eight hours of his arrival on the scene."

"Did they have radio?"

"There was one in the van they picked up in Portland. They called in to check the equipment. That was from Klamath Falls. Portland relayed."

"Forty-eight hours, huh?" Peruge muttered. "Why did he ask for that time spread?"

"He wanted a chance to get set up on the scene—to reconnoiter the area and choose his observation site."

"Yes, but—"

"That was not an unreasonable spread."

"But Carlos was always so cautious."

"This speaks of caution," Merrivale objected.

"Why didn't you order him to make more frequent periodic calls?"

"It did not seem indicated."

Peruge shook his head from side to side. It was diabolic. A pack of amateurs would not have left this many loose ends and blunders behind them. Merrivale would admit no mistakes, though. And the man had those explicit orders to fall back on. Embarrassing. He would have to be shunted aside, though. He would have to be stored somewhere until the axe fell. Merrivale was a miserable incompetent. There was no excuse for him. He was just the kind of man Peruge needed right now, someone to point to when the really embarrassing questions were asked.

With angry abruptness Peruge pushed himself out of the chair, stood glowering down at Merrivale, who appeared thoroughly cowed.

"You're a fool, Merrivale," Peruge said in a cold, hard voice. "You've always been a fool and always will be. We have a full report on Tymiena's objections from DT. She wanted a backup team. She wanted frequent radio contact. You specifically told her not to bother Portland-relay unless the message was something vital. You told her she was to take her orders from Carlos and not to question them. You ordered her not to mount any official inquiry into what happened to Porter. Under no circumstances was she to move out from under her cover. Those were your instructions." Peruge pointed to the folder on Merrivale's desk. "And you had read that!"

Merrivale sat in shocked silence at the outburst. For a horrible moment he appeared about to cry. His eyes glistened with unshed tears. But he managed to respond with a semblance of his accent once more intact.

"I say—you don't leave your opinions in any doubt—"

LATER, on the telephone from the airport, Peruge said, "I suppose we ought to be grateful to him. There's no doubt now of the situation we're in."

"What do you mean by that?" the Chief asked, his voice disgruntled.

"I mean that we went in without knowing Hellstrom's situation. Now we know it. He's willing to play for high stakes."

"As though we weren't."

"Well, I've settled with Merrivale, at any rate. I ordered him to stand by for reassignment."

"He won't do anything stupid?"

"Hasn't he done enough stupid things already?"

"You know what I mean, dammit!"

"I think he'll obey his orders to the letter," Peruge said.

"But you upset him badly." It was a statement, not a question.

"No doubt of it." This was an unfamiliar tack and Peruge hesitated, staring thoughtfully at his scrambler cap on the telephone.

"He's been on the phone to me,"

the Chief said. "He complained about you bitterly. Then he said he was putting our written instructions to him in a safe place. He also made a point of telling me that he had given Janvert the special signal corps number and code letters, as per our instructions for supervising agents. He even quoted the section to me from some set of orders we gave him years ago."

After a long silence Peruge said, "We might have to take stronger measures with him."

"Yes, there's always that," the Chief said.

XII

The words of Nils Hellstrom: Unlike man whose physical limitations are dictated from the moment of his birth, the insect is born with the actual ability to improve upon his body. When he reaches the limits of his capability he miraculously transforms into an entirely new being. It is in this metamorphosis that I find the most basic pattern for my understanding of the Hive. To me the Hive is a cocoon from which the new human will emerge.

HELLSTROM sat thinking in his cell. His eyes were absently aware of the charts and diagrams pasted over his walls, the reassuring standby blink of his repeater console. But he was not actually seeing these things. *They'll send in the first team now,* he thought. *They were just probing before. Now we'll get the real experts and from them we may learn enough to save ourselves.*

It had been a long night and a longer day. He had managed to get a two-hour nap, but the Hive was tense and twanging with crisis awareness. Body chemistry told the workers what was happening if nothing else told them.

When he had returned to his cell a little more than two hours earlier Hellstrom had been so tired he had tossed his Outsider jacket onto a chair and just flopped on the bed in his clothes. Something heavy in a pocket of the jacket had been left hanging over an edge, however, and had dragged the jacket into a mound on the floor beside the chair. He could see the lump of the heavy object and abruptly remembered the Outsider pistol he had picked up before leaving his cell—how long ago? The incident not only seemed to belong to another lifetime—but to another universe. Everything had changed. Powerful Outside forces had developed an interest in something that was sure to lead them to the Hive.

Project 40.

The source of the leak appeared so innocent on the surface that Hellstrom shivered when he thought about it. Jerry, one of the cameramen, had been assigned to the MIT sequences and, as part of that assignment, had been charged to do a special research project in the library. He remembered leaving the papers on a table "for no more than a half-hour." They had been in the same place when he had returned and he had collected them, thought no more about it. An in-

nocent slip. But it had been all the Outsiders needed. They seemed to possess a malevolent genie who watched out to take advantage of such casual mistakes.

Jerry was heartsick. He felt that he had betrayed his beloved Hive. And he had. But an accident had been bound to happen some day. The miracle was that the Hive had endured so long undetected. The peace of anonymity had its own life cycle, apparently. Peace at any price never quite worked out the way one hoped. There was always a higher price to pay.

Feeling nervous and quite irritable—emotions he knew his body would transmit like an invisible trail all along the way, but somehow not caring—Hellstrom arose suddenly, went down to check on Project 40. The Hive had to speed things up down there.

It had to!

> *Coded memo from Peruge:* For the time being I will not change Janvert's assignment. We must consider the delicate problem of a replacement for Merrivale. Certain aspects of Janvert's enrollment in the Agency appeal to me in this regard. Our hold upon him could be made very firm. There appears to be no doubt of our observation that a strong attachment has developed between Janvert and Clovis Carr. This could be worked to our advantage. To be on the safe side I have commissioned D. T. Alden to keep a special watch on both of them. A copy of his report will be forwarded to you.

PERUGE dumped his suitcase on the bed of the motel room on the outskirts of Fosterville. He had allowed himself only one small bag and a camera case with his communications gear. The camera case he draped over a chair arm. It was the way he liked to travel—bags under the airplane seat, no airport fuss, in and out of an area with as little attention called to himself as possible. In spite of his six feet four inches of height, he knew he tended not to attract second glances. He had learned long ago a self-effacing diffidence of manner he could adopt when he needed it. He tended to put it on like a garment when traveling.

It had taken him all morning to get the backup teams positioned in the mountains north of town, where they could operate line-of-sight communication to both his motel room and the observers at the farm. He was hungry for lunch, but there were things to be done first. He glanced around the room. It had been furnished in Grand Rapids Western—dark wood with imitation brand burns, a heavy-wear fabric for all upholstery. The place reeked of expense-account minimums. He sighed, dropped into a chair that creaked under his weight. One big hand found the telephone on the lamp table beside the chair and he dialed the motel office.

Yes, they knew the number for the office of the local deputy sheriff. Was there trouble?

Peruge explained that he had been asked by his company to make a missing-person inquiry. Mere routine. He had to listen to an involved explanation about the

town's having only one deputy, but a good one, mind you. The sheriff's office was actually over at the county seat. Presently, by answering all of the probing, curious questions with monosyllabic grunts, Peruge got the number he wanted and the motel office made the connection for him. Two minutes later he was discussing his problem with Deputy Lincoln Kraft, a man with a flat, almost characterless voice.

"We're reasonably sure they're missing," Peruge insisted. "Carlos was supposed to be back at work Monday and today's Friday. That's not like him. Very punctual, our Carlos."

"His wife, too, eh?" Kraft made this sound accusatory.

"Men often take their wives with them on vacation," Peruge said. He wondered then if that had been too flip for the local law.

Kraft apparently missed the sarcasm. He said, "Yes, I guess they do at that. Seems kind of strange your company would send you looking around for these people, though."

"Carlos has one of our most important routes," Peruge explained. "We can't let that sort of thing go by default. The competition moves right in on you, you know."

"Guess that's right. What line of work did you say you were in?" Kraft asked.

"I'm vice president of the Blue Devil Fireworks Corporation of Baltimore. It's one of the biggest in the country. Carlos was one of our best salesmen."

"Was?" Kraft asked. "You got reasons you haven't told me that make you believe he's in real bad trouble?"

"Nothing specific," Peruge lied. "It's just that it isn't like him not to show up when he's supposed to."

"I see. Probably some real ordinary explanation behind this, but I'll see what I can do. What makes you think he's missing in this area?"

"I received a letter from him. It mentioned a valley near Fosterville where he was going to look for scaled quail."

"For what?"

"Scaled quail. It's a bird that lives in arid land."

"Is he a hunter? He might have had a hunting accident and not been able to—"

"He didn't hunt birds to kill them. He liked to watch them and study them—sort of an amateur ornithologist."

"Oh, one of those." Kraft made the hobby sound faintly disreputable, perhaps reflecting on the man's sex habits. "What's the name of this valley?"

"Guarded Valley. Do you know where it is?"

Such a long silence ensued that Peruge became impatient. "You still there, Mr. Kraft?" he asked.

"Yeah, I'm still here."

"Do you know that valley?"

"Yeah. Sort of. That's Hellstrom's place."

"Whose place?" Peruge rather liked the fine air of misunderstanding he managed to impart to this question.

"That's Doc Hellstrom's place. He owns that valley. Been in his family for years."

"I see. Well, perhaps this medical

gentleman won't mind if we make inquiries in his neighborhood."

"He's not a hospital doctor," Kraft said. "He's a bug doctor. He studies bugs. Makes moving pictures about 'em."

"That shouldn't make any difference," Peruge said. "Will you see to the inquiries, Mr. Kraft?"

"You gotta come in and sign a formal request," Kraft said. "Missing-person report. I got one of the forms around here some place. We haven't had a missing person since the Angelus kid got herself lost on Steens Mountain. That wasn't the same thing as your problem, of course. Didn't need a missing-person report for that."

PERUGE considered this response, beginning to wonder about this deputy. The Agency's files showed quite a number of missing persons in the area over a period of some fifty years. All instances had reasonable explanations, but still— He decided that Kraft sounded nervous under that flat voice. Perhaps a little fishing would be in order.

Peruge said, "I hope this doctor's place isn't dangerous. He doesn't have poisonous insects around, does he?"

"Might have a scorpion or two," Kraft said, his voice brightening. "They can be mighty bad sometimes. You got pictures of these missing persons?"

"I have a photograph of Carlos and his wife—one he kept on his desk."

"That's fine. Bring that along with you. Did you say they were in a camper?"

"They had one of those big van campers—a Dodge. Carlos was very proud of it."

"Doesn't seem a thing like that could just disappear."

Peruge agreed with him, asked how to find the deputy's office.

"You got a car?" Kraft asked.

"I rented one back in Klamath Falls."

"This Carlos fellow must be pretty important to your company."

"I've already told you he is," Peruge said, allowing a trace of testiness to appear in his voice.

"They fly you all the way out here from Baltimore just to inquire about him?"

Peruge took the handset away from his ear, stared at it. What gave with this country cop? He put the instrument back to his ear, said, "Carlos covered the whole West Coast for us. It's important that we find out about him as soon as possible. If something's happened to him we have to replace him immediately. The buying season is about to begin. I've already talked to the state patrol in Salem. They told me to contact the authorities here."

"Thought you said you got a car in Klamath Falls," Kraft said.

"I went that far by chartered plane," Peruge said and waited with increasing interest for Kraft's response.

"Chartered plane? My, my. You could have flown right here and landed on our little dirt strip if you'd wanted. Why didn't you do that?"

So both of us are fishing, Peruge thought. *Good.* He wondered what

Kraft's response would be if the explanation included an account of how Peruge had missed connections in Portland and had been forced to rendezvous with his people in Klamath Falls.

"I don't like these little country landing fields," Peruge said.

"Can't say I blame you much for that, but this is a nice enough little field. You file a report with the state police in Salem?" Kraft's tone was alert and probing.

Good interrogation technique, Peruge thought. This country cop was no simpleton.

"Yes, I did. Carlos had his van shipped to Portland for this vacation and took it from there. The state police are making inquiries along the way. They have copies of this photograph."

"I see. Fireworks must be big business," Kraft said. "You people are spending a lot of money—chartered airplanes and everything."

Peruge considered this, decided a barb was called for. He said, "We look after our people and hang the cost, Mr. Kraft. I hope you'll start your inquiries as soon as possible. Now, how do I get to your office?"

"You're at the motel, eh?"

"Yes."

Kraft told him to come out of his motel parking lot, turn right "like you were going to Lakeview" and come out to county road 14. "Hang a left there and come up to the new shopping center. You can see it from the highway. I got a little office on the second floor. Everybody knows where it's at."

"I'll be right over," Peruge said.

"Just a minute, Mr. Peruge," Kraft said. "You carrying any skyrockets or firecrackers—things like that?"

"Of course not." Peruge managed to sound properly shocked while noting that Kraft had his name down correctly and was obviously on the official offensive. Did they think him unaware of state laws on fireworks? He said, "We ship only through legal channels, Deputy Kraft. Our people carry photographs and order lists. If we broke laws we wouldn't be in business very long. I find your question interesting, however."

"Just want to be sure you know our law," Kraft explained. "We don't take it kindly when people come around saying one of our folks may have caused harm to a visitor. You gotta be mighty—"

"I didn't even suggest that," Peruge interrupted. "I take it as very interesting that you suggest it, however, *Deputy* Kraft. You can expect me in your office in just a few minutes."

Silence. Then: "Okay. Don't forget that picture."

"I wouldn't think of it."

Peruge sat staring at the telephone for a moment after hanging up. Presently he placed a call to Salem and told the state patrol he had talked by telephone with Deputy Sheriff Lincoln Kraft and asked if the patrol had anything to report. They had nothing to report. He called the Baltimore switchboard next and asked them to contact the FBI. This had been agreed upon as a code signal that he distrusted the local authorities and his office was to firm up the request for FBI assistance.

He depressed the stem on his wristwatch transmitter then and felt the faint throbbing against his skin that told him the teams at the Steens Mountain campsites were on the job and monitoring his signal. Everything was in order. Time to begin bearding Hellstrom in his den.

XIII

The words of Nils Hellstrom: The living prototype of the computer was designed by nature long before man ever set foot on Earth. It is nothing more nor less than the termite mound, one of the first experiments in social order. It is a living reminder that all may not be as man would wish it among the life forms that share this planet with him. We all know, of course, that compared with man the insect does not display what we could describe as intelligence. But why should we feel proud about that? Where there is no intelligence there may be no stupidity. And the termite mound stands as a living accusation, a finger pointed at our pride. A computer is a mechanism programed with a thousand tiny bits of information. It operates by juggling information into a form of logic. Think about it. Is a beautifully functioning society not a form of logic? I say that the creatures of such a mound, each a bit of the whole, move through their hidden circuits, thousands of tiny particles of information organizing themselves into an indisputable form of logic. Their source of power is a broodmother, a queen. She represents a great throbbing mass of energy, motivating all around her with her insatiable need. Thus our Hive rests firmly on its breeding chambers. Within the queen's pulsating body lies the future of the mound. Within our breeding chambers lies our future and, in truth, the future of humankind.

KRAFT called the farm as soon as Peruge had broken the connection. He had Hellstrom on the line within a minute.

"Nils, there's a fellow at the motel named Peruge. Says he's from the Blue Devil Fireworks Company and he's looking for a missing salesman and the salesman's wife. Missing in your area. Says he has a letter from the salesman that mentions Guarded Valley. Should we know anything about that?"

"I told you to expect this," Hellstrom said.

"I know, but this fellow sounds very sharp. He's already talked to the state patrol and I wouldn't be a bit surprised if he called in the FBI."

"Don't you think you can handle him?"

"I may've made him suspicious."

"How?"

"I kept probing for some kind of admission from him that this wasn't an ordinary missing persons case. He's on his way over here right now. Says he has a pho-

tograph of the missing couple. State patrol has a copy, too. FBI is sure to get another one. Somebody's bound to have seen this pair and the search is going to center right here."

"Nobody will find anything at the farm," Hellstrom said. He sounded sad and tired, and Kraft felt the first nigglings of a deeper concern.

"I sure hope you're right. What should I do?"

"Do? Cooperate with him in every way. Take the photograph. Come up here to inquire."

"Nils, I don't like this. I hope you're—"

"I'm trying to keep the interface of our conflict as small as possible, Linc. That is my most urgent concern."

"Yes, but what if he asks to tag along?"

"I hope he does."

"But—"

"Bring him."

"Nils, if I bring him up there with me—I hope he's coming back with me."

"That is our concern, Linc."

"Nils—I'm real worried. If he—"

"I'll handle it myself, Linc. We'll have everything smooth and ordinary here when you arrive."

"I sure hope so."

"How did he get to Fosterville, Linc?"

"Rented car."

"Is he alone?"

"I don't think so. There are several new campers up on the mountain."

"We noted the activity. Rented car, eh?"

"Look, Nils, this guy had better not have an accident in that car. I got a funny feeling about this one. He's big trouble."

"No doubt of it," Hellstrom agreed. "They've sent in the first team."

> *From the Hive breeding record:* This new group must be watched with extreme care. This includes all of the breeding batch designated Fractionated Actinomycin Nucleotide Complex Y-series (FANCY). While it offers us a great potential in several specializations the Hive needs desperately it may harbor a strain of instability. This instability may be evidenced in a heightened breeding drive, in which case it can be diverted to the Hive's advantage. However, other symptoms may crop up and should be reported to Breeding Central immediately.

HELLSTROM sat in reflective silence after the emergency meeting of his Council. He felt that the entire Hive had become what he imagined a hunted submarine to be—rigged for silent running. All power systems, including ventilation, were operating at minimums. Water interchange with the deep underground river that ran the turbines and was the Hive's major water source had been put under special observation to prevent anything from entering it that might arouse Outside suspicions when that water reached the Snake River system.

How much did Peruge and his cohorts know about Project 40? Hellstrom wondered. The question had been left unanswered by the Council meeting. The Outsiders could not know everything about Project 40, nor was it likely they knew anything about the Hive as yet. Hellstrom felt confident of this. At the barest suspicion that something like the Hive existed they would be in here with an army. Some accommodation had to be reached with these Outsiders before they learned too much. The deaths were regrettable, but they had followed as an inevitable consequence of Porter's death. That had been an error.

We lived too long in the security of our camouflage, he thought. *We became too bold. Making films caused that—and all the necessary intimate arrangements with Outsiders that grew out of the films. We underestimated the Outsiders.*

Hellstrom suppressed a weary sigh. He missed Old Harvey. The present security team was a good one, but Old Harvey had possessed a special ability, a balancing wisdom. The Hive needed him now more than ever and all they had of Old Harvey's legacy was his favorite protege, Saldo. Did Saldo represent what came out of the vats new? Saldo had undergone a profound maturing since the night of the hunt. The transformation appeared to Hellstrom in some ways to resemble a metamorphosis. It was as though Saldo had really inherited Old Harvey's wide experience and wisdom on that fatal night. Hellstrom knew he was leaning on Saldo for the same kind of support he had learned to expect from Old Harvey. Whether Saldo could bear up under these demands remained to be seen. So far he had shown bursts of brilliance and imagination, but Hellstrom shook his head. It was difficult to lean on such a young and untried member of the New Breed in a crisis. But whom else did he have?

The Council meeting had started at noon in a screening room that occupied one entire corner of the barn studio. It was a room of outwardly conventional appearance—oval table flanked by massive chairs, Hive-made of heavy extrusion plastic to counterfeit teak. A pulldown screen filled one end of the room. Speakers on each side of it clung to the high ceiling corners. A small double-glass window at the other end looked into the projection room. The walls were baffled and hung with loosely draped fabric to dampen sounds.

SALDO had remained behind the others at Hellstrom's request. The bullet scar along his jawline had not completely healed. It stood out whitely against his dark skin. The hawkish features were relaxed, but there was a steady alertness in his brown eyes. Hellstrom recalled that Saldo was of the S_2a-1 Series on the male side—this made him one of Hellstrom's cousins. The younger man had been picked from prime drone stock, the source of all the breeding males. He had been subjected to all of the proper chemical reinforcements. And now Saldo represented a nice con-

vergence of the functional traits upon which the Hive relied so heavily.

"We must be prepared at every level to respond quickly and thoroughly if anything goes wrong," Hellstrom said, looking up and starting the conversation as though Saldo had shared the preceding reverie. "I have sent messages to all of our fronts Outside that they must be prepared to proceed on their own if we are lost. All records that allude to such fronts have been made ready for demolition."

"But have we anticipated every contingency?" Saldo asked.

"The question I've been asking myself."

"I know." And Saldo thought: *Our Prime Male is tried. He needs rest and we cannot give him that rest.* Saldo felt at this moment extremely protective toward Hellstrom.

"Peruge probably will be carrying special electronic equipment," Hellstrom said. "At the very least he'll be transmitting his position and condition to monitors Outside. I'm sure of it."

"To those people on the mountain."

"Yes. We must know the nature of his equipment as soon as possible."

"I've made all the preparations," Saldo said. "Nils, shouldn't you get some rest?"

"No time. Peruge is on his way and he's just the tip of the iceberg."

"The what?"

Hellstrom explained the allusion. Then: "How many people do you think he has on the mountain?"

"There are at least ten people camping up there. They could all be his."

"That many?" Hellstrom shook his head.

Saldo nodded, sharing Hellstrom's disquiet. The idea of more than ten people at once snooping into the Hive's affairs created a profound disturbance of his inbred caution and conditioning.

"Does Linc have anyone he can send up the mountain to play camper with those others?" Saldo asked.

"He's looking into it."

"Linc is bringing this Peruge personally, isn't he?"

"Yes. But we mustn't assume that Peruge trusts Linc."

"Linc was no match for this Peruge—that's obvious," Saldo said. "I heard his account."

"Learn from that," Hellstrom said. "It's good to have our Outside fronts include a deputy sheriff, but a front creates its own problems. The more we expose of ourselves the more danger we're in."

Saldo tucked this lesson into his memory. One did not deploy agents with complete impunity. The very existence of an agent carried its own message when that agent was exposed. The very fact that Peruge could suspect Lincoln Kraft revealed something about the Hive. Saldo vowed to remember this lesson when the present crisis was past. He had no doubt that the Hive would surmount the present difficulties. His trust in the Prime Male, Hellstrom, was profound.

"Peruge may possess a device to reveal that we're probing for his

equipment," Hellstrom said.

"I have given instructions to monitor for that eventuality," Saldo said.

Hellstrom nodded, pleased. So far Saldo had anticipated every contingency that had arisen in Hellstrom's own mind—and some that had not. Prime breeding stock always showed its worth in the crunch. Saldo possessed a penetrating intelligence. The younger male would be of inestimable value to the Hive when he had been tempered and fully trained.

"What excuse have you prepared if he detects our probes?" Hellstrom asked.

"I want to discuss that with you. Suppose, for the film in progress, we are making a sound-track with a great deal of complex mixing. It would be perfectly explainable electronic activity. The visit of this Peruge surely could not be expected to interrupt that. We have a schedule to keep. Any interference with Peruge's equipment could be explained by this work."

Hellstrom nodded thoughtfully. "Excellent. And if I ask him when he arrives if he has a radio because—"

"—a radio would interfere with our equipment," Saldo completed for him. "The question would be perfectly natural."

"See to the cover preparations," Hellstrom said.

Saldo arose, stood with his fingertips touching the table, hesitating.

"Yes?" Hellstrom asked.

"Nils, are we sure the others didn't have such equipment. I've been reviewing the tapes and records and—" He shrugged, obviously loath to criticize.

"We searched them. There was nothing."

"That seems odd—the fact that they didn't carry such equipment."

"They weren't considered important enough," Hellstrom said. "They were sent in to see if they would be killed."

"Ah." Saldo's expression betrayed both understanding and shock.

"We should have understood that about Outsiders," Hellstrom said. "They are not very good humans, the wild ones. They commonly waste their workers this way. The ones who intruded here were expendable stock. I know now that it would have been far wiser for us to confuse them and send them away with a believable story."

"It was a mistake to kill them?"

"A mistake to make it necessary to kill them."

Saldo nodded his understanding of the fine distinction. "We made a mistake," he said.

"I made a mistake," Hellstrom corrected him. "Too much success made me careless. We must always keep the possibility in mind that any of us can err."

> *The words of brood mother Trova Hellstrom:* Let me introduce here a word about the quality we call caution. Where we say we have been and where we say the Hive is headed —somewhere in that mysterious future—is by necessity somewhat removed from what we imagine are facts. Our own interpretation always inter-

venes. What we say we are doing is inevitably modified by our own understanding and by the limits of our comprehension. First, we are partisan. We see everything in terms of Hive survival. Second, the Universe has a way of appearing to be one thing while it is actually something else. In this light caution becomes a reliance upon our deepest collective energies. We must trust the Hive itself to possess wisdom and to manifest that wisdom through us, its cells.

WHEN they reached the point on the lower road where Peruge could get his first look at Hellstrom's farm he asked Kraft to stop. The deputy brought his station wagon to a skidding, dusty halt, peered questioningly at his passenger.

"Something wrong, Mr. Peruge?"

Peruge merely tightened his lips. Kraft interested him. The deputy could have been type-cast for the role he played. It was almost as though someone had looked at him and said, *Now, this one—we'll make him the deputy.* Kraft had a sunburned, western appearance, thick nose and beetling brows, pale yellow hair topped by a wide-brimmed hat. His squarish features surmounted a blocky body which moved with a stiff-legged horseman's walk. Peruge had seen several people on Fosterville's one main street who looked vaguely like Lincoln Kraft.

Kraft accepted Peruge's silent appraisal without qualms, secure in the knowledge that he was a Hive-hybrid whose appearance could not possibly excite questions about alien background. Kraft's father had been a local rancher seduced in a gene foray by a breeding female. Many Fosterville locals had remarked on Kraft's resemblance to the father.

Kraft cleared his throat and said, "Mr. Peruge, I said—"

"I know what you said."

Peruge glanced at his wristwatch. Its hands stood at quarter to three. Every delay imaginable had been thrown in the way of this excursion—telephone calls, careful examination of the missing-person report, a lengthy study of the photograph, question after question and a laborious assemblage of answers on paper, all executed in a slow and meticulous longhand. But here they were, finally, in sight of Hellstrom's farm. Peruge felt his pulse quicken. The air carried a dry, cloying silence. Even the insects were still. Peruge sensed something out of character about the stillness. He grew aware slowly of the absence of insect sounds, asked Kraft about this.

Kraft pushed back his hat, rubbed a sleeve across his forehead. "I expect someone's used a spray."

"Really? Does Hellstrom do that sort of thing? I thought all the environmentalists were against sprays."

"How did you know the Doc was into ecology?"

Sharp! Sharp! Peruge reminded himself. He said, "I didn't know it. I just assumed an entomologist would have that as one of his concerns."

"Yeah? Well, maybe the Doc

isn't spraying. This is rangeland right here."

"Somebody else could be doing it?"

"Maybe. Or the Doc could be doing something else. Did you have me stop just so you could listen?"

"No. I want to get out and scout around the area and see if I can spot any sign of Carlos' camper."

"Not much sense in that." Kraft spoke quickly with an undertone of sharpness.

"Oh? Why?"

"If we decide he's really been around here we'll do a thorough search."

"I thought I told you," Peruge said. "I've already decided he was around here. I'd like to get out and have a little look at the area."

"Doc don't like people wandering around his place."

"But you said this was rangeland. Does he control it?"

"Not exactly, but—"

"Then let's have a look." Peruge put a hand on the door.

"You just wait a minute," Kraft ordered.

Peruge nodded silently. He had found out what he wanted to know—Kraft was here to block any investigation by strangers.

"All right," Peruge said. "Does Hellstrom know we're coming?"

XIV

KRAFT had put the station wagon in gear, prepared to resume their lurching progress toward the farm, but now he hesitated. Peruge's demand that they stop had shocked him. The first thought had been that the Outsider had seen something suspicious, something overlooked by the Hive's cleanup workers. Peruge's attempts to get out and search the area had done nothing to ease that initial disquiet. Now it occurred to Kraft that Peruge or his people might have tapped the telephone to the farm. But Hive Security was always wary of that—surely it would have detected such an intrusion.

"Matter of fact, he does know," Kraft said. "I called to make sure Doc was here himself. Sometimes he goes gadding off to mighty strange places. And I wanted to clear it that we were coming. You know how these scientists are."

"No. How are they?"

"They do experiments sometimes. Outsiders go blundering in and upset everything."

"Is that why you don't want me to get out here?"

Kraft spoke with obvious relief. "Sure it is. Besides, the Doc makes movies up here all the time. He gets a bit testy if you ruin his pictures. We try to be good neighbors."

"You'd think he'd put out guards or something."

"No. The locals all know about his work. We steer clear of his place."

"How testy does he get if one ruins his experiments or his movies?" Peruge asked. "Does he—ah—shoot?"

"Nothing like that. Doc wouldn't really hurt anybody. But he can be mighty rough-mouthed when he wants. He's got important friends, too. Pays to be on his good side."

That he has, Peruge thought. And that could explain the strange

behavior of the local law. Kraft's job must be a sinecure. He would be careful not to lose that sinecure.

Peruge said, "Okay. Let's go see if we can find Dr. Hellstrom's good side."

"Yes, sir!"

Kraft got the car moving, made a special effort to act casual and unconcerned. Hellstrom's orders had been explicit: this was a routine investigation into some missing persons. All cooperation would be extended.

Peruge admired the farm buildings as they approached the north fence. The farm had been built in a time when materials were squandered without any worries about the supply. There wasn't a knot in any of the lumber visible on this side of the farmhouse or the barn, although the wood had that dark gray of long weathering and probably could have used a coat of paint. Peruge wondered idly why the farm *wasn't* painted.

Kraft stopped parallel to the fence and just clear of the gate, said, "We walk from here. Doc doesn't like us bringing our cars up to the buildings."

"Why's that?"

"Something to do with his work, I expect."

"The place could use a coat of paint," Peruge said as he got out his side of the car.

Kraft, got out, closed the door on his side and spoke across the roof of the car. "I heard tell Doc used some kind of wood preservative on his buildings. They just look plain weathered. Kind of pretty when you think about it."

"Oh?" Peruge walked to the gate, waited for Kraft. "What's that concrete building over there?" He pointed to the low structure inside the fence to the left of the gate.

"Might be a pump house. About the right size for a big one. Or it could be something to do with the Doc's work. I never asked." Kraft watched Peruge carefully. The concrete structure housed an emergency ventilation system that could be opened by explosives and was linked to standby pumping. Several more such installations were scattered around the area, but the others were camouflaged.

"Is Hellstrom married?" Peruge asked.

Kraft opened the gate before answering. "I don't rightly know." He stood aside to let Peruge enter, closed the gate. "Doc has lots of pretty gals around here sometimes. For his movies, I s'pose. Maybe he thinks there's no sense buying a cow when milk's free." Kraft chuckled at his own hairy witticism, added: "Let's get along up to the farm."

PERUGE shuddered as he fell into step with the deputy. That humor had been a little heavy. This deputy was neither pure western, pure yokel or pure anything else. Kraft tried too hard to appear the semi-rustic. The trying was so obvious at times that it dominated every other action. Peruge had decided earlier to watch the deputy carefully—now he put an extra note of caution on his resolve.

"Place looks kind of shabby," Peruge said, hurrying to keep pace with Kraft's long-legged stride. Despite the stiffness of his gait, the

deputy moved with a no-loitering directness that suggested he didn't want Peruge to take too close a look at the surroundings.

"I thought it looked pretty good here," Kraft said. "They keep the farm area pretty neat."

"Do they do much farming?"

"Not much any more. His folks used to keep a lot more crops. Some of the kids the Doc has here plant corn and things in the spring, but they're just playing at farming, seems to me. City people, most of them. They come up here from Hollywood or out from New York and gawk at us natives and play farmer."

"Hellstrom has a lot of visitors?" Peruge kicked at a dusty clump of grass as he spoke. The dry, hot air of the place bothered him. There was an irritant humming sound in the background; it was apparently coming from the farm, and an underlying animal smell that made him think of a zoo. The odor had not been apparent outside the fence, but became stronger the deeper they went into the little valley. What he could see of the creek on his right showed only a thin trickle of water. The rest was mostly pools and puddles connected by narrow rills full of green algae that waved in weak currents. There appeared to be a small waterfall at the upper end of the valley, however.

"Visitors?" Kraft asked after a long pause. "Sometimes the place is crawling with 'em. Can't spit without hitting someone. Other times he probably doesn't have more'n ten or twelve people here."

"What's that smell?" Peruge demanded.

"What smell?" Kraft asked, then realized Peruge meant the Hive odor, most of which was washed from the vented air, but which was always detectable here in the valley. Kraft rather enjoyed the odor. It reminded him of his childhood.

"That animal smell," Peruge said.

"Oh, that. Probably something to do with the Doc's work. He keeps mice and things in cages up there. I saw them once. Regular menagerie."

"Oh. Is that a year-round waterfall I see at the upper end of the valley?"

"Yep. It's pretty, isn't it?"

"If you like that sort of thing. What happens to all of the water? The creek seems rather small down here." Peruge stopped as Kraft looked directly at him, forcing the deputy to come to a halt, also.

"I expect the ground soaks it up," Kraft said. He appeared impatient to continue, but unable to think of a good argument. "The Doc may take part of it up there for irrigation or cooling or something. I dunno. Let's get on up, eh?"

"Just a minute," Peruge said. "I thought you said Hellstrom didn't do much farming."

"Doesn't. But what he does still takes some water. Why you so curious about his creek?"

"I'm curious about everything on this place," Peruge said. "There's something wrong about it. No insects. I don't even see any birds."

KRAFT made a swallowing motion in a dry throat. Obviously, there had been a thorough

nightsweep recently. Trust this Peruge to notice the absence of local fauna!

"Birds often hide where it's cool in the hot part of the day," he ventured.

"Is that right?"

"Didn't your birdwatching friend ever tell you that?"

"No." Peruge glanced around him, peering carefully at everything in sight. The quick and intense motions of his head and eyes alarmed Kraft. "What he did say once," Peruge continued, "was that there was an animal or a bird for every time of day or night. I don't believe the birds are hiding—you can't hear them. There are no birds here and no insects."

"Then what was your friend doing here?" Kraft asked. "If there are no birds, what was he watching?"

Ah, my friend, not so fast, Peruge thought. *We aren't ready yet to take off the gloves.* But Peruge was convinced now that Kraft was in league with Hellstrom. Peruge said: "Carlos would've noticed the absence of birds and he might've gone hunting for an explanation. If he found an explanation that could cause trouble for someone, that might explain why he's missing."

"You sure got a suspicious mind," Kraft said.

"Haven't you?" Peruge asked. He moved into willow shadows at a bend in the creek, forced Kraft to follow. "What's this Hellstrom really like, Deputy?"

Kraft didn't care for being called Deputy in that tone of voice, but he kept his manner casual in response. "Oh, he's just a plain, ordinary, run-of-the mill scientist type."

Peruge noted that Kraft's voice came out flat and reasonable, but something in the set of his body, especially in the watchful turn of head and eyes, put the lie to this mask. Peruge nodded, as though he understood this, silently urging Kraft to continue.

"They're all crazy, of course," Kraft said, "but not dangerous."

"I've never really agreed with that harmless, crazy scientist picture," Peruge said. "I don't think they're all innocent and harmless. To me no atomic physicist is completely responsible and trustworthy."

"Oh, come now, Mr. Peruge." Kraft was making a valiant attempt to sound jovial and hearty. "The Doc makes movies about bugs. Educational. I expect the worst thing he's ever done is bring some pretty girls up here for some moonlight nooky."

"Not even dope?" Peruge pressed.

"You believe all that stuff you read about Hollywood types?" Kraft asked.

"Some of it."

"I'd bet my bottom dollar that the Doc is clean," Kraft said.

"Would you?" Peruge asked. "How many missing-persons cases have you really had in his area over, say, the past twenty-five years?"

With a sinking feeling Kraft thought, *He's seen all of the old records!* Nils had been right about this one without even seeing him. The Outsiders had sent a sharp and prying mind this time. Peruge was aware of all the old mistakes the Hive had made. *Bad, bad, bad.* To

hide his reaction, Kraft turned away and resumed his progress toward the farm buildings, which now were less than fifty yards ahead. "Depends on what you call a missing person," he said. And, as he noted that Peruge still stood in the willow shadow: "Come on. We can't keep the Doc waiting."

Peruge followed, suppressing a smile. The deputy really was quite transparent. Kraft had been shaken by the barb about missing persons. This was not just a plain, ordinary, run-of-the-mill deputy. Things were beginning to jell in Peruge's mind. Three agents had been wasted here, chasing a suspicion. Discovery of a deputy-who-wasn't-a-deputy gave those suspicions a new dimension. Something had been learned, after all. *And,* Peruge thought, *Hellstrom's learned what we're willing to pay for access to his Project 40. Now we find out what he's willing to pay.*

"I always thought a missing person was a missing person," Peruge said, addressing Kraft's blocky back.

Kraft spoke without turning: "That all depends. Some people want to be missing. Guy runs out on his wife or his job—I guess he's technically missing. But that's not what you're saying about your man. When I say 'missing person' I generally mean someone who's in real trouble."

"And you don't think any real trouble could happen here?"

"This isn't the Old West any more," Kraft said. "This area is tamer than a lot of your cities. People don't even lock their doors most places around here. Too damn much trouble fishing around for the keys." He grinned back over his shoulder. "Besides, we wear our pants kind of tight. Don't leave much room in our pockets."

THEY were passing the farmhouse now. The barn loomed before them across a bare stretch of dirt perhaps sixty feet wide. An old fence divided the open area, but only the posts remained. The wire had been removed. There were yellowed curtains on the bay window of the farmhouse wing that jutted toward the creek, but the place held an oddly vacant air. Kraft wondered about that house. Empty? Why? Houses were supposed to be occupied. Did Hellstrom and his crew live there? Did they eat there? Why wasn't someone inside rattling pots and pans and things? He recalled Porter's comment about negative signs. A penetrating observation. The wrongness wasn't so much in what you could see around Hellstrom's farm as in what you couldn't see.

He found another positive sign now, though—an acid odor. He thought first of photo chemicals, then rejected that answer. The smell was much more penetrating and biting. Something to do with Hellstrom's insects, perhaps?

A swinging door had been set into the old sliding door of the barn. The smaller door opened as Kraft and Peruge approached. Hellstrom himself stepped out. Peruge recognized the man from the photographs in the Agency's files. Hellstrom wore a white turtleneck shirt and gray trousers. His feet

were tucked into open sandals. His rather sparse light hair looked as though it had been tangled by a wind and then pushed into a semblance of order by hurried fingers.

"Hi, Linc," Hellstrom called.

"Hi there, Doc."

Kraft strode up to Hellstrom, shook hands. Peruge, following closely, received the odd impression of a rehearsed action. Kraft and Hellstrom shook hands with such a perfunctory sense of unfamiliarity.

Peruge moved to one side, choosing a position that gave him a view of the barn door Hellstrom had left standing partly open. Nothing was visible except darkness in the small gap remaining.

THE action seemed to amuse Hellstrom. He grinned as Kraft introduced him to Peruge. Peruge found Hellstrom's hand cool, but rather dry. There was a sense of forced relaxation about the man, but no sign of excess perspiration in the palm. He had himself well under control, then.

"Are you interested in our studio?" Hellstrom asked, indicating the door and the direction of Peruge's gaze with a nod.

Peruge thought, *Now, aren't you the cool one!* He said, "I've never seen a movie studio."

"Linc told me on the phone that you were looking for one of your employes who might be missing in our area," Hellstrom said.

"Ah, yes." Peruge wondered why he couldn't see anything beyond that open door. He had seen Hollywood studios and remembered a sense of organized confusion—bright lights, dollies, cameras, people bustling about, then that frozen stillness of the moments when they were filming.

"Have you seen anyone nosing around here, Doc?" Kraft asked.

"Nobody but our own people," Hellstrom said. "No strangers, at least recently. When did these people turn up missing?"

"About a week ago," Peruge said, returning his attention to Hellstrom.

"That recently?" Hellstrom asked. "My. Are you sure they aren't just extending their vacation without notice?"

"I'm just as sure as a man can be," Peruge said.

"You're welcome to look around," Hellstrom said. "We've been pretty busy in the studio lately, but we would have noticed any strangers in the neighborhood. We keep a pretty close watch to see that no one bursts in on our work unexpectedly. I don't think you're going to find any sign of your people in our area."

Kraft visibly relaxed, thinking, *If Nils thinks they've cleaned up the area well enough, then it's clean.*

"Oh?" Peruge pursed his lips. It came to him abruptly that there were several levels to this conversation. He and Hellstrom knew this. Most likely the deputy did, too. The various parts of the interleaved message were distinct. Peruge was welcome to pry around, but he would find nothing incriminating. No strangers could come upon Hellstrom's farm without being seen. Hellstrom probably remained confident that his powerful connections would keep the real contest submerged. Peruge, for his

own part, had revealed to Hellstrom an awareness that people were missing in the immediate vicinity of the farm. In a way, Hellstrom had not denied this, but had merely pointed out that it would be useless to look for the missing people. How, then, were the real stakes to be introduced into the game?

Hellstrom said, "Deputy Kraft tells me you work for some kind of a fireworks company."

Ah, Peruge thought with delight. He said, "My firm has diversified interests, Mr. Hellstrom. We're also interested in metallurgy, especially new processes for exploitation. We're always on the hunt for potentially valuable inventions."

Hellstrom stared at him for a moment. Then: "Would you like to come in and see the studio? We're very busy right now—behind schedule on our latest epic." He started to turn, hesitated as though at an afterthought. "Oh, I hope you're not carring a radio or anything of that kind. We use short-range radio in part of our mixing circuitry for the soundtracks. Other equipment can play hob with our work."

You son-of-a-bitch! Peruge thought. He folded his hands casually in front of him, left wrist in right palm, turned off the tiny wristwatch transmitter. And he thought, *If you think you're going to keep me out of your little playpen, baby, you think again. I'm going in there and I may see more than you expect.*

Hellstrom, noting the movement of Peruge's hands, and suspecting the reason, still found himself wondering at the man's curious statement about diversified interests, metallurgy and new inventions. What could these have to do with Project 40?

XV

The words of Trova Hellstrom: Whatever we do in breeding for the specialists we require, we must always include the human being in our processes, prefering this to the intrusion of surgical instruments. The sexual stump can be condoned only as long as we include the body's original genetic materials in the practice. Anything that smacks of genetic surgery or engineering must be looked upon with the gravest misgivings. We are, first and foremost, human beings and must never loose ourselves from our animal ancestry. Whatever we are, we are not gods. And whatever this universe may be, it obviously rests heavily in dependence upon the accidental.

"HE'S not transmitting," Janvert said, moving the control dials on his instruments. He sat in the curtained shadows of the van's interior, the receiver mounted in front of him on a ledge originally intended as part of the camper's kitchen. Nick Myerlie's bluff and sweaty body was leaning over him, one red-knuckled hand on the counter beside the radio. The big man's heavy features carried a frown of deep concern.

"What do you think's happened to him?"

"I think he turned his transmitter off deliberately."

"For god's sake! Why?"

"The last thing I received—" he tapped the tape recorder over the radio—" was Hellstrom saying something about not bringing any radio equipment into their studio."

"That's risky business—turning off his transmitter."

"I would have done the same," Janvert said. "He has to get into that studio."

"But still—"

"Oh, shut up! Is Clovis still outside with her telescope?"

"Yes." Myerlie sounded hurt. He knew Janvert was second in command on this case, but it was irritating to take such short-tempered treatment from a runt.

"See if she's seen anything."

"That thing's only twenty-power and it's still pretty misty out there. Hot weather always does that."

"Go find out anyway. Tell her what's happened."

"Right."

The camper creaked and moved as Myerlie took his big body outside.

Janvert, who had lifted one earphone away from his right ear to talk to Myerlie, replaced it now and stared at the receiver. What had Peruge meant by the last odd conversation? Metallurgy? New inventions?

> *The words of Trova Hellstrom:* Our future lies in an ultimate form of human domestication. All Outside patterns of humankind must be seen, then, as wild forms. In our domestication process we will necessarily introduce a multiplicity of diverse human types into our social scheme. No matter how much diversity this brings, the mutual interdependence and consequent sense of respect for our essential oneness must never be lost. Brood Mother and Prime Male are different only in surface features from the lowliest worker. If the most exalted among us have any prayer, it must be one of thanksgiving that there are workers. It is salutary when seeing a common worker, to think: *There, but for leader foods and training, am I.*

ENTERING the studio through a double-door system—which explained why he had not been able to see inside the building from the yard—Peruge sensed something odd about the sounds and movements. That fetid animal smell was very strong in here, too. He ascribed it to a glass-fronted structure off on his left, behind which he could discern animals in cages. He identified mice, guinea pigs and monkeys.

In all of the film studios Peruge had seen before this, he had observed that special quality of silence while group energies flowed up a mysterious channel into the camera lens. This place was different, though. No one tiptoed. Those who moved about walked with a casual silence that suggested they found it normal. The door baffles had eliminated that incessant humming

so irritatingly noticeable outside, but here a faint sussuration replaced it.

Only one camera crew appeared to be working. It had set up in a corner to Peruge's right and was working very close to a glass container about three feet on a side. The glass reflected hot shards of light.

Hellstrom had warned Peruge not to talk until told it was permitted. Peruge pointed to the camera crew in the corner, lifted his eyebrows in a silent question.

Bending close, Hellstrom whispered, "We're capturing the articulation of insect body parts in a new way. Magnified views. The lens is actually inside that glass case—which maintains a special climate for the subject insect."

Peruge nodded, wondered at the rule of silence. Would they be doing sound-on-film for such a sequence? It seemed unlikely, but his acquaintance with film making was perfunctory at best, hurriedly augmented for this assignment, and he knew better than to speak his question aloud. Hellstrom would like nothing better than an excuse to throw him out. The man's nervousness had become increasingly obvious.

Hellstrom leading and Kraft bringing up the rear, they struck out diagonally across the center of the studio area. As always when an Outsider was this close to the workings of the Hive-head, Hellstrom found himself unable to completely suppress feelings of disquiet. The Hive's territorial conditioning went too deep. And this Peruge reeked of Outsider smells. He did not belong in this place. Kraft, behind him, would be having an even worse time of it. He had never before accompanied an Outsider into these precincts. The working crews were behaving with outward normalcy, however. They would feel this Outsider's presence as a constant rasping on the awareness, but front training dominated their reactions. All proceeded smoothly.

Peruge noticed the movement of people around him—across his path, beside him, off in the corners of the cavernous studio. All appeared to be on normal business and none gave more than a casual glance to the trio crossing the open area, but Peruge could not avoid the feeling that he was under the closest scrutiny. He looked upward. The bright lights being used in the lower part of the studio left the upper regions in deep shadows which his vision could not penetrate. Was that deliberate? Were they hiding something up above him?

The swinging descent of a cage on the end of a boom caught his attention and he stumbled over a coil of cables. He would have fallen if Kraft had not leaped forward to catch his arm. The deputy restored Peruge to balance, put a finger to lips for silence. Kraft released Peruge's arm reluctantly. It felt more secure to have a controlling arm on this intruder. He found himself torn by tormenting worries. Nils was playing with fire! There were voiceless workers out there on the studio floor. They had been conditioned for the menial tasks here, but their presence posed an explosive danger. What if one of them reacted to Peruge's Outsider che-

mistry? The man's smell was offensive!

PERUGE, seeing his path clear for a few paces, glanced back at the descending boom cage. It had swung from the gloomy mystery of the upper reaches and was moving in oiled silence down to the camera setup in the corner. A woman in a white smock occupied the cage. She had a startlingly pale skin accented by ebony hair tied at the neck in a simple chignon. The fluttering of her smock in the wind of the boom's movement suggested that she wore nothing under it.

Kraft pushed Peruge's arm, urging him to move faster. Reluctantly Peruge picked up his pace. There had been something magnetically attractive about that pale-skinned woman and he could not get her image out of his mind. Her face had been a madonna oval beneath that black cap of hair. The arms protruding from the smock's short sleeves had suggested sensuous softness.

Hellstrom stood now at a door in a structure that had been erected as a separate, flat-roofed building inside the studio. A wall climbed to the upper areas behind the flat roof. Peruge estimated that the wall split the barn in half lengthwise and wondered what lay behind it. He followed Hellstrom into a dimly lighted room with heavy glass from waist height to ceiling across two of the inner walls. One glass partition gave a view into a smaller studio where insects were flitting openly back and forth through blue light—pale, big-winged moths by their appearance. The other window framed a shadowy room where men and women worked at a long, curved bank of electronic instruments. Small screens directly in front of each operator showed lilliputian movements. It reminded Peruge of a television control booth.

Kraft closed the door behind the trio and stood, arms folded across his breast, as though guarding the entrance. Another door in the far right corner, Peruge noted, led into the shadowy room of the electronic instruments. Again Peruge felt that the entire setup did not quite fit his picture of a movie studio.

A small oblong wooden table with four chairs around it stood in the room and Hellstrom took a chair on the far side of it, spoke in a calm voice: "The men you're watching in there, Mr. Peruge, are mixing several sound sources for a combined track. It's delicate work."

Peruge studied the people in the shadowy room, unable to pinpoint what struck him as odd about them. Abruptly he realized that of the six men at the arc of instruments and three women standing on the far side of the arc, all but one looked enough alike to be from the same family. Again he scanned the faces illuminated by the low, wavering light. Five of the men and three of the women were alike, not only in the uniform white smocks, but in short blond hair and rather pinched faces, dominated by large eyes. The women were distinguished only by rather obvious breasts and a slight softening of the features. The lone male who differed from the others was also blond and reminded Peruge of someone. He realized then

that the odd man out looked like Hellstrom.

AS ALL this flashed through his mind the door behind Kraft opened and the young woman from the boom entered. At least, Peruge cautioned himself, she appeared to be the same young woman, but after the people next door he began to wonder.

"Fancy!" Hellstrom exclaimed, in quick though quiet alarm. Why was she here? He hadn't sent for her and he didn't like the stalking feline expression on her face.

Kraft stepped aside grudgingly to allow her to pass.

Peruge watched her, noting the oval, almost doll-like face, the extremely sexy body, its contours showing through the thin smock. She kept her attention on Hellstrom while speaking, but there was no doubt she was playing to Peruge.

"Ed sent me over," she said. "He wants you to know that we have to re-shoot that mosquito sequence. You're in it, you know. I told you we'd have to re-shoot. The mosquitoes were disturbed, but you wouldn't listen to me."

Abruptly she appeared to notice Peruge. She moved to within a pace of him and asked, "Who's this?"

"This is Mr. Peruge," Hellstrom said, a deep note of caution in his voice. What was Fancy doing?

"Hello, Mr. Peruge," she said, her voice lilting. She moved even closer to him. "I'm Fancy."

Hellstrom watched her closely. What *was* she doing? He inhaled deeply, detected that Fancy had shot herself up with breeding-hypers. She was trying to arouse Peruge! Why? She was having an effect, too. Peruge was attracted to Fancy and unable to explain the sudden magnetism. No wild Outsider could understand the simple chemistry of the situation. Kraft, too, was caught momentarily by her powerful sexuality, but Hellstrom flashed a hand signal that alerted him to the hypers. Kraft, long out of the Hive's daily contacts and constant reinforcements, took a few seconds to recover. Peruge, however, was not recovering.

Should he let this continue? Hellstrom wondered. She was playing a dangerous game and acting without instructions. Granted, it would be desirable to have Peruge's genes in the Hive stocks, but . . .

Peruge stood in partial shock. He could not recall having been caught up in sexual excitement this swiftly and this thoroughly ever before. The woman felt it, too. She was panting for him. He wondered distantly if these people had done something to him, but rejected the consideration immediately. This was that oddly random chemistry one heard about. He realized, catching up with her words, that Fancy was asking if he were going to stay the night.

With an effort Peruge said, "I'm staying in town."

She glanced at Hellstrom. "Nils, why don't you invite Mr. Peruge to stay with us?"

"Mr. Peruge is here on business," Hellstrom said. "I imagine he would prefer staying in his own quarters."

Peruge wanted nothing more than to stay the night with this compelling woman, but he began to sense inner alarm signals.

"You're just being stuffy," Fancy said to Hellstrom. Again she looked up into Peruge's eyes. "Are you in films, Mr. Peruge?"

He tried to fight free of that enveloping aura of sexuality, tried to think. "No. I'm—I'm, ah, looking for some friends, an employee and his wife, who are missing. They were last reported around here someplace."

"Oh, I hope nothing's happened to them," she said.

Hellstrom arose from the table, crossed to Peruge's side. "Fancy, we do have a schedule to keep."

PERUGE tried to wet his lips with his tongue. His mouth felt dry. His body trembled. The delectable little witch! *Was she told to make a play for me?*

Hellstrom glanced at Kraft, wondered if he should do something physical to get Fancy out of the room. She had really shot herself up, the crazy female! He spoke to her in a reasonable but commanding tone: "Fancy, you'd better get back to the crew. Tell Saldo I want special attention paid to the most urgent problems first and tell Ed I'll be ready to re-shoot the mosquito sequence tonight."

Fancy drew back a step, relaxed. She had this Peruge on a string and she knew it. The man almost followed her as she moved away from him. He would keep. She said, "All you ever think about is work. Anybody would think you were just a plain old, common everyday worker."

She was taunting him, Hellstrom realized.

Fancy obeyed him, though, her Hive-training dominant. She turned slowly, walked to the door with only a flicking glance at Kraft. She paused in the doorway to look back at Peruge. She smiled at the Outsider then, slyly and invitingly, raised her eyebrows in another silent taunt directed at Hellstrom and went out, closing the door softly behind her.

Peruge cleared his throat.

Hellstrom studied Peruge. The man was having trouble recovering, not surprising in view of how Fancy had armed herself for that attack. It had been an attack, Hellstrom realized. Pure attack. She was out to get Peruge, to breed him.

"That's a—very attractive woman," Peruge said, his voice husky.

"Would you like to go over to the house for a cup of coffee?" Hellstrom asked, feeling a sudden sympathy for Peruge. The poor wild creature had no idea of what had happened to him.

"That's very kind of you," Peruge said, "but I thought we were going to look at your studio."

"Didn't you see the studio out there?"

"Is that all there is to it?"

"Oh, we have the usual support facilities," Hellstrom said. "Some of it's too technical for the casual visitor to understand, but we have a wardrobe section and one of the best editing labs in the business. Our collection of rare insects is without equal anywhere in the

world. We could also screen some of our film for you if you'd like, just to show you what we do here, but not today, I'm afraid. The schedule is pretty tight. I hope you understand."

Kraft took up his cue. "Are we delaying you, Doc? I know how important your work is. We just came by to find out if any of your folks had seen any of Mr. Peruge's friends."

"I'll certainly inquire around among my crew about that," Hellstrom said. "Why don't you come back and take lunch with us tomorrow, Mr. Peruge? Maybe I'll have something to report by then."

"I'd like to do that," Peruge said. "What time?"

"Would eleven in the morning be all right?"

"That would be fine. Maybe some of your people would like to hear about my company then, too. We do have an intense interest in metallurgy and new inventions."

There he goes again, Hellstrom thought. He said, "If you get here by eleven we'll have about an hour before lunch. I'll have someone show you around—editing, wardrobe, the insects." He smiled pleasantly.

Will my guide be Fancy? Peruge wondered, feeling his heartbeat quicken.

He said, "I'll be looking forward to that. In the meantime—I hope you won't mind if I call in some help and have a look around the area myself."

Hellstrom saw Kraft's muscles tighten, spoke quickly, "Not right here on the farm, I hope, Mr. Peruge. We're getting ready to shoot some outside footage while this weather holds. It doesn't help much when people stumble over our setups and delay us. I hope you understand how costly such delays can be."

"Oh, yes, I understand," Peruge said. "I was thinking only of having a look at some of the range area around your farm. Carlos's letter made it clear that he was in this area. I thought we might see if we could turn up something."

Aware of Hellstrom's mounting alarm, Kraft said, "We don't want you interfering with the official investigation, Mr. Peruge. Amateurs can completely destroy evidence without—"

"Oh, I'll have only the best professional help," Peruge said. "You can count on that. They won't interfere one bit with the official investigation. And I'll make sure they don't bother Mr. Hellstrom at his movie-making. You'll have nothing but admiration for the quality of professional help I'm calling in, Mr. Kraft."

"Guess you don't care how much money you spend searching for your people," Kraft muttered.

"Expense is no object," Peruge agreed. He was enjoying this suddenly. This pair was on the hook. They knew it, too. "We're going to find out what happened to our people."

That challenge is plain enough, Hellstrom thought. He said, "Of course, we sympathize with your concern. Our own immediate problems tend to dominate our attention. We can be pretty single-minded when our schedule is threatened."

PERUGE felt himself beginning to come down from the lift Fancy had given him and now alarm and anger began to take over. They had tried to catch him with a little pussy! He said, "I understand how things are, Hellstrom. I'm going to tell my home office to deploy all the professional manpower we can spare."

Kraft stared at Hellstrom, seeking a cue.

Hellstrom said evenly, "We understand each other, I think, Peruge." He glanced at Kraft. "You just keep intruders from interfering with us, eh, Linc?"

Kraft nodded. What did Nils mean? How could he stop an army of investigators? This Peruge was going to call in the FBI. The bastard had done everything but say it in so many words!

"Until tomorrow, then," Peruge said.

"Linc knows the way out," Hellstrom said. "I hope you will forgive me if I don't see you out. I really must stay and get on with my work."

"Of course," Peruge said. "I've already noticed how well Deputy Kraft knows his way around your farm."

Hellstrom's eyes glittered as he shot a restraining signal at Kraft. "Local officials have never been barred from our land," Hellstrom said. "We will see you tomorrow, Peruge."

"You certainly will."

Peruge moved ahead of Kraft to the door, opened it and stepped out into a full collision with Fancy, who appeared to be returning. He caught an arm around her to keep her from falling. There was no doubt at all that she wore nothing under the white smock. She ground into him as he jerked his arm away in shock.

Kraft pulled her away, asked, "You all right, Fancy?"

"I'm fine," she said, grinning at Peruge.

"That was clumsy of me," Peruge said. "I'm sorry."

"You needn't be," she said.

Hellstrom spoke from behind them. "We've had enough commotion out here, Linc. Would you see Mr. Peruge out?"

They left hurriedly, Peruge in considerable confusion. He'd received the unmistakable impression that Fancy had been ready to flop him down and seduce him right then and there!

Hellstrom waited until the outer door closed behind Kraft and Peruge, then turned an inquiring stare on Fancy.

"He's in the bag," she said.

"Fancy, what *are* you doing?"

"I'm doing my homework."

Hellstrom suddenly noted the thickening of Fancy's bosom, the way her upper arms stretched the fabric of the smock.

He asked, "Fancy, do you see yourself as a broodmother?"

"We haven't had one since Trova," she said.

"And you know why."

"All that nonsense about a broodmother exciting the swarming drive?"

"It's not nonsense and you know it."

"Some of us think it is. We think the Hive may swarm without a

broodmother, and that might be disastrous."

"Fancy, don't you think we know our jobs? The Hive will have to grow at least ten thousand more workers before swarming pressures become apparent."

"They're apparent right now," she said. She rubbed her arms. "Some of us can feel them."

XVI

Comment on the current film: The film sequence shows an insect cell, the development of the egg and, finally, the caterpillar emerging. How striking is this metaphor. We emerge from the parent body, those wild creatures who call themselves humankind. The message of this metaphor goes much deeper, however. It says we must prepare for our emergence. We are immature at this stage, our needs dominated by preparations for adulthood. When we emerge, it will be to take dominion over the surface of the Earth. When we have achieved our adult form we will eat to live rather than to grow.

PERUGE heard the telephone ring for a long time before the Chief answered. He had been sitting on the edge of his motel bed after returning from lunch with Hellstrom. It had been an extremely disappointing lunch. He had seen no sign of Fancy. The proceedings in the dining room of the old farmhouse had been formal and shallow. No one had risen to his bait about new inventions. The Chief was not going to like this report.

The Chief's voice came on the phone presently, alert and responsive despite the long delay in answering. The old man had not been asleep, then, but doing something he had refused to interrupt even to answer what he often referred to as "that instrument from hell."

"I told you I'd call as soon as I got back," Peruge said.

"Where are you calling from?"

"The motel. Why?"

"Are you sure that phone's clean?"

"It's clean. I checked."

"Let's scramble anyway."

Peruge sighed, got out his equipment. Presently he had the Chief's voice in his ear with that distant quality the scrambler imposed.

"Now tell me what you found out."

"They refuse to respond to any overture about metallurgy or new inventions."

"Did you quote an offer?"

"I said I knew someone who would pay up to a million for a promising invention in that field."

"That didn't tip them?"

"Nothing."

"The board is beginning to pressure me," the Chief said. "We're going to have to act soon, one way or another."

"Hellstrom must have some price," Peruge said.

"You think he may bite, if you up the ante?"

"I don't know for sure. What I'd like to do is send Janvert and probably Myerlie around to the

south of Hellstrom's valley and look for signs of Carlos and Tymiena. I have a hunch they may have approached · from the south—the lower end of that valley. Lots of trees that way and you know how cautious Carlos was."

"You send no one."

"Chief, if we—"

"No."

"But if we could put that kind of pressure on Hellstrom, we might get him for much less. We could have this thing all sewed up and ready to move before the board gets—well, you know how they can be when they get suspicious."

"You would teach your grandfather to suck eggs? I said no!"

PERUGE began to sense complications. "Then what do you want me to do?"

"Tell me what you saw at Hellstrom's place."

"Not much more than I saw yesterday."

"Be specific."

"In one sense, the place is quite ordinary. Almost too businesslike. No relaxation—everyone seems serious and—dedicated. That's the word that kept occurring to me. That's not ordinary. These people put me in mind of a Chicom farm commune laboring to meet its harvest quota."

"I don't think we're going to find a Red in this woodpile," the other said, "but that's something to keep in mind if we need to cover ourselves with glory. However, the matter is much more serious than you realize."

"Oh?" Peruge was suddenly alert, intensely concentrated on the voice coming to him over the phone.

"I had a call from upstairs today," the Chief said. "A special assistant to the Man. They wanted to know if we were the ones poking into Hellstrom's affairs."

"Oh-oh!" That explained why Hellstrom had appeared so confidently in command of the situation. How did this little bug doctor get that kind of clout?

"What did you do?" Peruge asked.

"I lied," the Chief said, his voice bland. "I said it must be somebody else because I hadn't heard about it. However, I promised to check because sometimes my people become a bit overzealous."

Peruge stared at the wall in silence for a moment. Who was being set up here? He said, "We have Merrivale lined up if we need a patsy."

"That was one of the things I considered."

One of the things?

The Chief interrupted his development of that worry by asking, "Now tell me what they're doing on that farm."

"They're making movies about insects."

"You told me that yesterday. Is that all they're doing?"

"I'm not sure what else—but I have some ideas about where they may be doing it. There's a basement in that studio—wardrobe and some other crap down there, all disgustingly standard in appearance. But a tunnel leads from the barn to the old farmhouse. They took me through it and we had lunch in the house. There were

some very strange dames to wait on us, too, I tell you. Beautiful dolls, all four of them, but they don't talk—not even when you speak directly to them."

"What?"

"They don't speak. They just serve table and go away. Hellstrom said it's because they're perfecting special accents and have been ordered by their voice coach not to say anything unless the coach is there to listen and correct them."

"That sounds reasonable."

"Does it? It struck me as odd."

"Were you transmitting to Janvert and the others?"

"No. It was the same as yesterday. They were very nice about it and so-o-o reasonable. Radio for their soundtracks and so on. Would I please not cause problems?"

"I still don't like you going in there without radio. If something—Maybe you'd better replace Janvert with Myerlie or DT as your second."

"Relax. Hellstrom as much as told me that I'd be all right if I played it cool."

"How did he do that?"

"He explained in detail how angry he gets when people cause setbacks in their schedule. I was told to stick close to my guide and not stray."

"Who was your guide?"

"Some little guy named Saldo—no bigger than Shorty Janvert. Very close-mouthed. There was no sign of the dame they threw at me yesterday."

"Dzule, are you sure you're not imagining—"

"I'm sure. Look, we're stymied. I need help. I want the highway patrol, the FBI and anyone else we can dragoon into crawling over those hills around Hellstrom's farm—"

"Dzule! Didn't you hear me when I told you about my call from upstairs?"

PERUGE tried to swallow in a suddenly dry throat. The Chief could be abrupt and final when his voice took on that calm, reasonable tone of correction. So there was more than just reported to that call from upstairs. The troops were stirred up.

"You cannot ask for help on a project that doesn't exist," the Chief said.

"Did you know I'd transmitted a request through Signals for FBI help?"

"I intercepted that and cut it off. That request no longer exists."

"Is there any way we could get an overflight to inspect that farm?"

"Why?"

"It's what I was starting to explain. This tunnel from the barn to the house—I'd like to know if there are more such tunnels under that area. Geological Survey has techniques to detect that kind of thing."

"I don't think I could ask for that kind of help without tipping our hand. I'll look into it, though. There may be some other way. You're suggesting they may have laboratories and such under the barn in tunnels?"

"Yes."

"It's an idea. I've a couple of friends in the oil industry who owe us favors."

"The board—"

"Dzule!" A warning note in the voice said: *Don't question my intelligence.*

"I'm sorry, Chief," Peruge said. "It's just that—well, I'm uneasy about this thing. All afternoon at that farm—I kept wanting to get the hell out of there. There's a stink about the place and—it's a creepy setup. The trouble is, I can't pin down a single thing—except the blatant facts of Porter and company."

The voice on the phone took on a patronizing, fatherly tone. "Dzule, my boy, don't go inventing trouble. If we can't get our hands on Hellstrom's invention and control the metallurgical process this becomes a straightforward case. I can discover that some of my overzealous boys have uncovered a hornet's nest of subversion. To do that, however, we need much more than we already possess."

"Porter and—"

"They don't exist. You forget that my signature was on the orders."

"Ah—yes, of course."

"I can go upstairs and say we have this bit of a file—little more than a memorandum, really—which one of our boys found at the MIT Library. I can do that—but only if I'm ready to defend the argument that it involves the private development of a major weapons system."

"Unless we have more information they'll make the same kinds of guesses we did."

"Precisely," the Chief said.

"I see. Then you want me to take this to an open negotiation with Hellstrom."

"Indeed I do. Is there any reason why you think you cannot do that?"

"I can attempt it. I have a date to go back there tomorrow. I led them to believe I'll have an army of professional help to conduct a search of the area within a day or so and they—"

"What are your preparations?"

"Janvert and his teams will be using line-of-sight to follow my movements while I'm outside the buildings. When I get inside, I most likely will be incommunicado. We will, of course, probe for a soft spot—a window or something that could act as a microphone for our laser pickup. However, I don't believe I should wait for that kind of contact before opening—"

"How do you propose to open the negotiations?"

"FIRST I'll lay it on heavily about the reserves I can call up. I'll admit that I'm an envoy of a powerful agency in the government, but I won't identify us, naturally. After that—"

"No."

"But—"

"We have three agents probably dead and they—"

"They don't exist. You said so yourself."

"Except to us, Dzule. No. You will merely tell them that you represent people who are interested in their Project 40. Let them worry about what reserves you may have. They've probably killed three people—that, or they're holding prisoners and—"

"Should I look into that possibility?"

"For God's sake! Of course not.

But the chances are high they'll be more fearful of what they suspect than of what they know. For all they know, you could have the army, the navy and the marines standing by, with the FBI in reserve. If you need leverage, mention our *missing* friends, but don't appear anxious to get them back. Refuse to negotiate on that score. We want Project Forty, nothing else. We don't want murderers or kidnapers or missing people. Is that clear?"

"Very." And, an empty feeling growing within him, Peruge thought, *What if I turn up missing?* He thought he knew the answer to the question and he didn't like it.

"I'll get those oil people to do what they can," the Chief said, "but only if it can be done without tipping our hand. Finding out where Hellstrom's people work doesn't strike me as too helpful at this point."

"What if he refuses to negotiate?" Peruge asked.

"Don't provoke a showdown on it. We still have the board and its forces in reserve."

"But they'd—"

"They'd take the whole thing and throw us a bone, yes. But a bone is better than nothing."

"Project Forty could be entirely innocent."

"You don't believe that," the Chief said. "And it's your job to prove what we both know in this case." The Chief cleared his throat, a loud, hacking noise over the scrambler. "As long as we have no proof we don't have a damn thing. They could have the secret of the end of the world down there, as we led the board to believe, but we can't move unless we prove it. How many times do I have to say that?"

Peruge rubbed his left knee where he had bumped it against a light stand in Hellstrom's studio. It wasn't like the Chief to continue to stress a point. What was happening back there? Was the Chief trying to send him a subtle message?

"Do you want me to find a good excuse for us to pull out of this?" Peruge asked.

There was open relief in the Chief's voice: "Only if it seems the right thing to do, my boy."

Somebody's with him, Peruge realized. It had to be someone accorded a degree of trust, somebody important, but someone who could not be told everything. Try as he might, Peruge could not fit anyone he knew into this description. It should be perfectly obvious to the Chief that his agent in the field had no intention of pulling out. *But he was fishing for that suggestion from me.* Which meant the someone in the Chief's office was hearing both ends of the conversation. The cryptic nature of the hidden message bespoke extreme caution at headquarters. A call from upstairs? How powerful a man was this Hellstrom?

"Can you say anything about the kinds of toes we may be stepping on?" Peruge asked.

"No."

"Isn't it even possible to find out whether Hellstrom's influence has a purely political base—big contributions to the party, that sort of thing—or whether it's possible, for instance, that we're nosing into the affairs of another agency?"

"Now you're beginning to understand the problem as I now see it," the Chief said.

So somebody from another agency is with him now, Peruge thought. That could mean one of the Chief's own people had been infiltrated into the other agency. It could mean there were two agencies interested in Hellstrom or it could mean Hellstrom's Project 40 was the product of another agency. Investigators could be tripping over each other if this thing were stirred up enough.

"I get the message," Peruge said.

"When you meet Hellstrom," the Chief said, "don't introduce this other possibility yourself. Leave that up to him."

"I understand."

"I certainly hope you do—for your own sake as well as mine."

"Shall I call you back later today?"

"Not unless you have something new to report. Call me immediately after you've seen Hellstrom, however. I'll be waiting."

Peruge heard the connection close at the other end. He disconnected his scrambler, replaced the telephone on its stand. For the first time in his life, Peruge began to sense what his field agents felt. *It's all very well for him to sit back there all safe and tidy, but I've got to go out and risk my neck and he won't lift a finger if I get chopped!*

XVII

The words of Trova Hellstrom: At all cost, we must avoid falling into what we have come to understand as "the termite trap." We must not become too much like the termite. Such insects give us our pattern for survival, but they have their ways and we have ours. We learn from them, but not slavishly. Termites, never able to leave the protective walls of their mound, come into a world that is completely self-sufficient. And thus it must be with us. The entire termite society is guarded by soldiers. And thus it must be with us. When the mound comes under attack the soldiers know they can be abandoned outside the mound, left to die to buy time for others to make the mound impregnable. And thus it must be with us. But the mound dies if the queen dies. We cannot be that vulnerable. If the mound dies, that is the end of them. We cannot be that vulnerable. The small seeds of our continuation have been planted Outside. They must be prepared to go on alone if our mound dies.

AS HE returned to the Hive down the long slope of the First Gallery, Hellstrom listened for some sound or other message to reassure him that all was well here. No such message came to him. The Hive remained an entity—it still functioned—but the sense of profound disturbance reached all through it. That was the Hive's nature: touch one part of it and all its cells responded. The chemistry of their internal communication could not be denied. Key workers, driven by the urgency of their situa-

tion, emitted subtle pheromones, external hormones that spread through the common air. The Hive's filters had been reduced to a minimum to conserve power. The pheromone signals remained for all to inhale and for all to share. Signs indicated that this situation could not continue without profound and possibly permanent effect on the totality.

His broodmother had once warned him: *Nils, the Hive can learn just as you learn. The totality can learn. If you fail to understand what the Hive learns you coula bring about destruction for us all.*

What was the Hive learning now? Hellstrom wondered.

Fancy's behavior suggested something demanded by the Hive in its deepest needs. She spoke of swarming. Was that it? They had been working for more than forty years to delay swarming. Had that been a mistake? He was worried about Fancy and had just tried unsuccessfully to find her. She was supposed to be with the shooting crew, but she hadn't been at her station and Ed had not known where to find her. Saldo had assured him that Fancy was now under constant surveillance, but still Hellstrom worried. Could the Hive create a natural broodmother? Fancy might be a logical choice for this role. What could the Council do if that happened? Should they send Fancy to the vats rather than risk an early swarming? He hated the thought of losing Fancy—that superb bloodline had produced many useful specialists.

If we could only breed out the instability. . .

Provided the problem *was* instability.

Hellstrom came to the concrete arch that opened into the Second Level feeding station, saw that Saldo awaited him there as ordered. Saldo could be depended on. This reassured Hellstrom. He realized how much he had come to depend upon the younger male. Without speaking, Hellstrom moved to Saldo's side. They entered the feeding station and fed together at the conveyor, drinking deeply of the common broth from the vats. Hellstrom always found a deep satisfaction in eating the food of the common workers. It was a satisfaction the supplemental leader foods never gave him. The leader foods might double the expected Hive lifetime, yet they lacked that one ingredient Hellstrom identified as unifying force.

Sometimes we need a lowest common denominator, he thought. This was never more apparent than in a time of crisis.

Saldo signaled that he was anxious to report, but Hellstrom gave the sign for patience, recognizing his own unwillingness to hear that report. While eating, Hellstrom had felt himself overcome by realization of how fragile the Hive was. The domesticated world he sought for humankind seemed now no more than a thin-shelled egg about to be crushed. All was so clear and sturdy in the Hive Manual, but so shimmering and weak in the execution. Although his mind searched for a clue, he could see no help in the Manual.

The Hive moves toward a nonverbal base for human existence. It

is a major purpose of the Hive to find that base, then to build a new language fitted to our needs. First, in the light of that plain message from the insect world, we shed the errors of the past. . .

They had not shed the errors of the past. They might never shed them. The path loomed so long, so exacting in its demands. No one had really imagined how long it might take or how many pitfalls they might have to surmount. At first—three hundred or more years ago, back in the oral-tradition times—they had assumed "a hundred years or so." How swiftly that error of the past had made itself known! The new truth had arisen then—the Hive might have to endure for a thousand years or more, unless a dramatic death convulsion overcame the Outsiders. A thousand years until the Earth lay domesticated under their dominion.

Hellstrom recalled thinking how the familiar Hive walls around him might crumble and be repaired hundreds of times before the Hive came into its own and the workers took over control of the planet surface.

What a fantasy! These walls might endure no more than another few hours and never be rebuilt.

THE necessity of breathing confidence into the Hive had never seemed this difficult. Reluctantly Hellstrom signaled for Saldo to speak, noting with a sense of revulsion how obvious it was that the younger man thought a few words with the Prime Male would solve all problems.

"Fancy got the breeding hypers from Hive stores by stealing them," Saldo said. "There's no record of an official—"

"But why did she take them?" Hellstrom asked.

"To defy you, the Council and the Hive," Saldo said. He obviously thought the question demented.

"We must not be too quick to judge," Hellstrom said.

"But she's dangerous! She should—"

"She must be allowed to continue without interference," Hellstrom said. "Perhaps the entire Hive actually speaks through her."

"Are we trying to breed with this Peruge?"

"Why not? We've used that method of getting outside blood many times. Peruge has been preselected for us by the wild Outside. He is living evidence of success."

"Success at what price?"

"However we get the strong ones—you know we must get them. Perhaps Fancy knows better than any of us how to deal with this threat."

"I don't believe it! I think she's using this talk of a swarm as an excuse to leave the Hive. You know how fond she is of Outsider foods and comforts."

"There is that possibility," Hellstrom agreed. "But why does she want to leave? I think your explanation is too glib."

Saldo appeared more abashed by the implied rebuke than it had warranted. He was silent for a moment.

Then: "Nils, I don't understand what you're saying."

"I do not understand it clearly myself, but Fancy's behavior may not be as simple as you imagine."

Saldo stared questioningly at Hellstrom's face as though some line or flicker of movement there might provide enlightenment. What did the Prime Male know that others did not? Hellstrom was an offspring of the Elders, the first colonists of this, the first true Hive. Had he received special instructions from that mysterious source of wisdom—what to do in this kind of crisis? Saldo's attention was caught by a flicker of movement to his left—the bowls of broth moving on the conveyor—as someone took a bowl from the end. Workers were feeding around them, taking no special notice of the two superior specialists. It was natural that no special notice be taken—common chemistry told the workers who belonged here and who did not. Bring in an Outsider, though, and unless the workers could see that the Outsider was under the control of their fellows or unless the alien's chemistry had been sufficiently masked the intruder would go immediately into the vats, carried there by unspeaking workers who cared only that a dangerous mass of protein be removed. The workers' response now appeared all very normal, but Saldo began to experience in this moment some of Hellstrom's sense that the Hive had been deeply wounded. There was a jerky stiffness to some of the movement, a belligerent thrust about the stride.

"Is something wrong of which I am unaware?" Saldo asked.

Ah, the wisdom of this young male! Hellstrom thought, pride suffusing him.

"That may well be," Hellstrom said. He turned, signaled for Saldo to follow, led the way to the gallery. They took the first side ramp and the next lateral passage, proceeded briskly to Hellstrom's cell. Inside, Hellstrom indicated a chair for Saldo, but stretched his own body on the bed. Blessed brood, but he was tired!

OBEDIENTLY Saldo sat down, glanced around. He had been in this cell before, but present circumstances made the place appear vaguely strange. A disturbing difference clamored for his attention, but he could not pinpoint it. Presently he realized the difference was the reduced noise from the service tunnel behind the rear wall of the cell. The hushed minimum of Hive operation could not be escaped in this place. Perhaps that was why Hellstrom refused to move to better quarters. Subtle odors of disturbance could be detected in the air, too. All the messages of crisis came to focus here.

"Things are wrong here that none of us know about," Hellstrom said, picking up the conversation with an answer to the question Saldo had asked at the feeding station. "That is our problem, Saldo. Events will occur to alarm us and we must be prepared to deal with them on their own terms. As the Outsiders say: 'We must hang loose.' Do you understand?"

"No." Saldo shook his head. "What kind of events do you mean?"

"If I could describe them, they would not fit the definition of unknowns." Hellstrom's voice was

sad. Moving only his eyes, keeping his hands clasped behind his head, Hellstrom glanced across at Saldo. The young male suddenly appeared as fragile as the Hive. What could Saldo's imaginative resourcefulness really do to avert the disaster building around him? Saldo was only thirty-four years old. Hive education gave those years a specious sophistication, a false worldliness of a kind never seen Outside. Saldo's naivete was Hive naivete. He did not know the kinds of liberties he might exercise Outside. He did not know what it was to be truly wild. Except vicariously through books and all the other trappings of Hive education, Saldo had little experience of the randomness that prevailed beyond the confines of the Hive. Given time, Saldo might gain that experience. The young male was the exact type the Hive must send into the tempering cauldron of wild humankind. But much of what he learned from his Outside ventures would bring him nightmares. He would, as every front specialist did, encyst those nightmares in a special unconscious core at the depths of his being.

Just as I have walled up my own most trying experiences, Hellstrom thought.

There could be no complete and permanent denial of such memories short of the vats, though. They came stealing out through unexpected cracks in one's defenses.

Taking Hellstrom's long silence as rebuke, Saldo lowered his gaze. "We do not know all that may happen to us, but we must be prepared anyway. I see that now."

Hellstrom felt like crying out, *I am not perfect! I am not invincible!*

Instead he asked, "How is Project Forty coming?"

"How did you know I had just inquired of it?" Saldo asked, awe in his tone. "I didn't mention it."

"All of us who carry the extra burden of awareness are inquiring regularly of Project Forty," Hellstrom chided. "What did you find?"

"Nothing new—really. Oh, they are building the new test model swiftly and it will—"

"Have they changed their opinion about its prospects?"

"They are raising new arguments about the generation of extremely high heat."

"Is there more?"

Saldo lifted his gaze, studied Hellstrom. Despite the Prime Male's obvious fatigue, there remained one more matter that could not be avoided.

"A band of the hydroponics harvesters was found wandering in the upper levels about an hour ago," Saldo said. "As nearly as we can determine they were expressing a need to go to the surface."

Hellstrom sat upright on the bed, shock suppressing his fatigue. "Why wasn't I told immediately?"

"We handled it," Saldo said. "It was blamed on the general disturbance. They've all been chemically adjusted and are back at work. I've instituted patrols in all of the galleries to prevent a recurrence. Have I done wrong?"

"No." Hellstrom lay back on the bed.

Patrols! Of course, that was all they could do now. But this told

how deeply disturbed the entire Hive had become. Fancy was right—the predictions about the swarming urge had not taken into account a crisis such as this one.

"Were there breeders among them?" Hellstrom asked.

"A few potentials, but they—"

"They were swarming, right?" Hellstrom said.

"Nils! Just a few workers from—"

"Nevertheless, they were swarming. It is there in the calculations of our earliest written records. You know this. We have watched for it and tried to predict it from the first. And without our leadership's being able to set the exact moment, we have reached a critical condition."

"Nils, the—"

"You were going to speak about numbers. This is not a mere consequence of numbers. Total population in a given space figures in our calculations, but this is something else. Young workers and potential breeders, at the very least, find themselves driven to leave the Hive. They were striking out on their own. That is swarming."

"How can we prevent a—"

"Perhaps we cannot."

"But we can't allow it now!"

"Yes, we must do our best to delay the swarming. To let them go now would destroy us. Have the filters turned back to maximum for a few hours and then adjust them to optimum."

"Nils, a suspicious Outsider in our midst might—"

"We cannot do otherwise. Desperate measures are required. A quiet weeding of population may be indicated if this—"

"The vats?"

"Yes, if the pressure becomes too great."

"The hydroponics workers who—"

"Watch them carefully," Hellstrom said. "And the breeders—even Fancy and her sisters. A swarm will need breeders."

XVIII

Peruge's private instruction to Daniel Thomas (DT) Alden: Janvert has come into possession of the special signal corps number and code required to call the President. If you see any attempt by Janvert to make such a call, any secretive attempt to use a telephone, you are to stop him, using whatever force you find necessary.

PERUGE tuned in a symphony concert on the motel room's radio under the mistaken idea that it might distract him. Time and again he found his awareness returning to contemplation of that disturbing woman at Hellstrom's farm.

Fancy.

What an odd name that was.

This motel had been chosen because it provided him with a room whose rear windows gave line-of-sight communication with the Steens Mountain camps where his backup teams had stationed themselves in the guise of vacationers. Peruge knew he had only to signal out that rear window and he could be in direct touch with any one of the three teams—nine

people. The laser-transceiver would catch their voices as clearly as if they stood in the room with him.

It bothered Peruge that he had allowed Shorty Janvert to remain in charge of the teams on the mountain. Damn that slimy-minded Merrivale!

This was not a reassuring situation and, as night gathered over the brown countryside beyond his room, Peruge reviewed his instructions and his preparations. Had he been wise to restrict Janvert by the explicit order: *You're to report everything to headquarters before initiating non-specified movements during those periods when I'm out of communication on that farm.*

The specified movements were extremely few and limited in scope: trips to Fosterville for groceries and visual check on Lincoln Kraft; shift of campsite to meet necessities of protecting the overall cover; visits between camps to transfer the watch and maintain constant surveillance.

So far Janvert had given no overt indication of untrustworthiness. His communications fitted all the reliability requirements. Tonight's was no exception.

"Does the Chief know you're going in there without communications?"

"Yes."

"I don't like that."

"I'm the one to worry about that, not you." Peruge had countered. Who did Janvert think he was?

"I'd like to see inside that place myself," Janvert said.

"You're not to make any such attempt without specific advice from headquarters and then only if I have been out of communication beyond a pre-set time limit."

"I don't doubt your capabilities," Janvert said, his tone remarkably conciliatory. "I'm just worried about all the things we don't know in this case. Hellstrom displays a remarkable lack of respect for our persons."

Peruge suspected Janvert of trying to fabricate a tone of real concern where none existed, felt impatient with such embroidery.

"The farm is my problem," Peruge said. "Your problem is to observe and report."

"Fat chance we get to observe while you're in there without a transmitter."

"You still can't find a weak spot in their armor?"

"I'd have told you first thing if I had."

"Don't get upset about it. I know you're trying."

"There's not a sound behind those walls. They must have a sophisticated damper system of some kind. Plenty of odd sounds in the valley, but nothing we can really identify. Machinery, mostly and it sounds like heavy machinery. I suspect they have equipment sufficiently sophisticated to have spotted our probes. Sampson and Rio are moving their rig to grid position G-6 some time tonight. They did most of the probing."

"You're staying put?"

"Yes."

JANVERT was taking all the right precautions, Peruge thought. *Why do I distrust him?* Would the little runt always live under the cloud generated by his

reluctant recruitment? Peruge felt angry with himself. It was disloyal to entertain the thoughts flowing through his mind. What was the Chief really doing?

Did the Chief consider Dzule Peruge just another one of the many expendables?

And the magnetic woman at Hellstrom's farm—was she just teasing him? Some women considered him handsome and his big body exuded animal power—which might explain most of what had happened up there.

Nuts! Hellstrom put her up to it!

"You still there?" Janvert asked.

"Yes!" Voice angry and sharp.

"What gave you the idea there might be more people on that farm than we can see? The tunnel?"

"That—yes, but there's more that you can't put your finger on. Record this for transmission, Shorty. I want a watch put on the ordinary supplies going into that place. How much food, that sort of thing? Be discreet, but pry."

"I'll take care of it. Do you want DT assigned to that?"

"No. Send Nick. I want an estimate on how many people would match the normal food orders."

"Right. Did the Chief tell you about the diamond bits for well drills?"

"Yes. They would have been delivered just about the time Carlos and Tymiena were supposed to be there."

"Weird, isn't it?"

"It fits an odd kind of pattern," Peruge said. "We just haven't found the precise nature of the pattern." He cast about in his mind, wondering at the reason for diamond drill bits in a movie company. There was just no explaining it and no sense wondering without more evidence. More likely to come up with a wrong answer than a right one—and either way he couldn't be certain.

"I agree," Janvert said. "Anything more for this report."

"Nothing." Peruge signed off, replaced the equipment in its cover-packaging, stored it in his shaving kit.

Janvert had been more talkative than usual. Those surface attempts to be pleasant couldn't be anything but false from that feisty little bastard.

Peruge thought about this as he lay in the quiet darkness of his motel bed. He knew he had been cut off. He was alone, removed even from the protection of the Chief, and he wondered why he went on.

Because I want to be rich, he thought. *Richer than the bitch of the board. I will be, too, if I can get my hands on Hellstrom's Project 40.*

> *Script consultation, Nils Hellstrom speaking:* On the screen the audience will see a butterfly emerging from its cocoon. We will see much more—and we want the audience unconsciously to see what we see. The butterfly personifies our own long struggle. It is the long darkness of humankind when the wild ones imagined they talked, one to another. It is the metamorphosis, the transformation of our Hive into the salvation of

the human species. It foreshadows the day when we will emerge and show our beauty to the admiring universe.

"THE transmitter is in his wristwatch," Saldo said. "We caught it just before he turned the thing off."

"Good work," Hellstrom said.

They stood in the electronic gloom of the barn aerie, the Security command post. Workers were going about their jobs quietly all around, a single-minded determination reflected in every movement. Nothing would get through this guard.

"Those probes we detected came from Steens Mountain," Saldo said. "We've located the position on the chart."

"Excellent. Is their lack of success igniting a renewed effort or are they quiet now?"

"Quiet. I've arranged to send a picnic party into the area tomorrow. They'll play and enjoy themselves and report back tomorrow night. The party will be composed only of extremely experienced *fronts.*"

"Don't count on their learning much."

Saldo nodded agreement.

Hellstrom closed his eyes tightly in distress and fatigue. He couldn't seem to get enough rest and what little he got failed to restore him. What they needed and would never find was a way to send Peruge packing, a way to answer all his questions without answering them. Those mysterious, probing questions about metallurgy and new inventions irritated Hellstrom. What could that possibly have to do with Project 40? New invention—yes, possibly. But metallurgy? He decided to communicate his question to the lab at the earliest opportunity.

Saying of the Hive Specialists: How primitive and far behind us are the Behaviorists of the wild Outside!

PERUGE heard the scratching at his door as part of a dream. It was a dog from his childhood calling him to get up for breakfast. Good old Danny. He could see the wide, ugly face, the dripping jowls, in his dream. He actually felt the fact that he was in bed, clad only in pajama bottoms as had always been usual for him. Abruptly circuits closed in his memory. That dog had been dead for years! He was awake instantly, silent and probing with all of his senses for evidence of danger.

The scratching continued.

He slipped his heavy automatic from under his pillow, rose and went to the door. The floor was cold against his bare feet. Standing at one side with the weapon ready, he jerked the door open on its chain.

There was a nightlight outside his door. It cast a yellow glow on Fancy, who stood there wrapped in something furry, dark and bulky. She supported a bicycle with her left hand.

Peruge closed the door, released the chain, swung the door wide. He knew he appeared strange standing there in his pajama bottoms with a big mankiller automatic in his

hand, but he sensed the urgent need to get her out of sight in his room.

He felt a surge of elation. They had sent this little vixen to compromise him—but *he* had one of them outside their goddamned farm!

Fancy entered the motel room without speaking, wheeling her bicycle. She leaned the cycle against the wall as Peruge closed and locked the door. When he turned toward her she was facing him and removing her outer garment, a long fur coat. She threw the coat over the bicycle's handlebars, stood in the thin white smock she had worn when he had last seen her. Her eyes were focused intently on his with a smoky, mocking look.

Fun first? Peruge wondered. *Or business first?* His hand was slippery with perspiration against the butt of the automatic. God, she was a sexy bitch!

He went to the window beside the door, slipped back the draperies, peered out. He could see no watchers. He crossed to the rear window, looked out over the parking lot toward the mountain. No prying strangers were visible there, either. Nobody. What time was it, for Christ's sake? And why wasn't the bitch talking? He crossed to the nightstand, lifted his wristwatch. 1:28 A.M.

Fancy watched all of this activity, a small smile on her lips. Outsiders were strange creatures. This one appeared even stranger than usual. Their bodies told them what they should do and they constantly disobeyed. Well, she had come prepared.

Peruge glanced at her from his position by the nightstand. Her hands were clenched into fists, but she appeared to be carrying no weapon. He slipped his gun into a drawer of the stand. Was she being quiet because the room had been bugged? That couldn't be—he had made certain the room was clean. He moved carefully, not turning his back on her. Why had she come on a bicycle? And in a fur coat, for the love of god! He wondered if he should alert the nightwatch on the mountain. Not yet. Fun first.

Fancy reached up with her left hand as though she had read his mind, unbuttoned the front of her smock, shrugged out of it and let it fall. She stood there naked, a sensuous pocket-Venus body which sent his pulse racing. There were open sandals on her feet. She kicked them off, stirring up trails of dust from her ride into town.

Peruge, his eyes glittering, wet his lips and said, "Aren't you something!"

Still without speaking, Fancy approached him, reached up and clasped both his bare arms. His left arm tingled as she touched it and he smelled a sudden, heavy musk. His gaze jerked toward the tingling in shocked alarm and he saw a tiny, flesh-colored ampule crushed beneath her forefinger against his skin, a fleck of his own blood there. In his panic he knew he should hurl her away from him, call for help from his nightwatch, but his muscles remained frozen while that tingling spread through his body. His gaze slipped from the ampule on his arm to Fancy's firm breasts, the dark nipples protruding with sensual tensions.

As though a mind-obscuring fog were creeping up from his loins, Peruge felt his will dissolve until his only awareness was of the woman who was now clinging to him, pressing against him with surprising strength, forcing him backward onto the bed.

Fancy spoke. "You want to breed with me? That's good."

> *From the Hive Manual:* A basic aim of the socializing process should be to create the widest possible tolerance of diversity among the society's components.

"FANCY'S missing," Saldo said.

He had come in person to Hellstrom's quarters, racing down the corridors and galleries which never lacked activity, ignoring the upset his running passage created among the workers.

Hellstrom sat upright in his bed, rubbing sleep from his eyes, shaking his head to wake himself. He had been in deep sleep, his first in days, trying for a good rest before tomorrow's certain confrontation with Peruge.

He peered up at Saldo's frightened face in the cell glow. "Alone? She left alone?"

"Yes."

Hellstrom exhaled a sigh of relief. "How did she get out of the Hive? Where is she?"

"She used that faulty emergency ventilator in the rock at the north perimeter. She had a bicycle."

"Weren't there guards?"

"She stunned them with de-hyp."

"But the Security watch!"

"They missed it," Saldo confessed. "She's obviously used this route before. She went into the trees and avoided every one of our detectors."

She would, of course, Hellstrom thought. A bicycle? Why a bicycle? Where had she gone? "How did she get a bicycle?" he asked.

"It's the one we took from the Outsider, Depeaux."

"What was that still doing around? Why wasn't it reduced for salvage?"

"Some of the engineers were playing with it. They were thinking of manufacturing our own model to speed up delivery service in the lower galleries."

"Which direction did she go?" Hellstrom levered himself out of the bed. What time was it? He glanced at the crystal clock on his wall: 3:51 A.M.

"She apparently went across the Palmer bridge. There are tracks."

Toward town then. Why?

"The guards she stunned say she was wearing Outsider garments," Saldo said. "Wardrobe reports a fur coat missing. She was into Hive stores again, too. We haven't determined yet what she took."

"How long has she been gone?" Hellstrom asked. He slipped his feet into Hive sandals, groped for a robe.

"Almost four hours," Saldo said. "Guards were unconscious for a long time." He rubbed at the healing wound on his jaw. "I'm sure she's gone into town. Two chemical trackers went as far along her trail as they dared. She was still headed for town when they broke off."

"Peruge," Hellstrom said.

"What?"

"She's gone to breed with Peruge."

"Of course! Shall I call Linc and have him—"

"No." Hellstrom shook his head from side to side.

Saldo trembled with impatience. "But that bicycle belonged to one of Peruge's agents!"

"Who identifies bicycles? They're not likely to make the connection. Fancy won't tell him where that machine came from."

"Are you sure?"

"I'm sure. Fancy has a one-track mind where breeding is concerned. I should have anticipated this when I saw her go on the attack with Peruge as target."

"That man is clever! She could tell him something without even realizing it."

"A possibility we'll have to investigate. But for now you will alert Linc. Tell him where she is and see that he makes certain they don't take her away for interrogation. Peruge is sure to have his friends watching him. We don't want any more activity around that motel than is absolutely necessary."

SALDO stared at Hellstrom in shocked silence. He had expected Hellstrom to call up all of the Hive's defensive resources. This was not an adequate response!

"Any more indications of swarming pressure?" Hellstrom asked.

"No. The—the ventilation appears to have helped."

"Fancy is fertile," Hellstrom said. "Getting her pregnant by an Outsider will help, too. She becomes quite tractable while producing a child."

"Ah—" Saldo stood in admiration of Hellstrom's wisdom.

"I know what she took from stores," Hellstrom said. "She will have a male sex-fraction in an ampule to hype up this Peruge. She wants to breed with him, that's all. Let her. Outsiders have extremely odd reactions to this natural form of human behavior."

"So it is said," Saldo murmured. "I've studied the behavioral precautions for work Outside."

"Depend on it," Hellstrom said, smiling. "I have seen this happen many times. Peruge will show up here tomorrow the figure of contrition. He will be with Fancy and very defensive. He will feel guilty. That will make him vulnerable to us. Yes—I believe I know how to handle this situation now, thanks to Fancy. Bless her."

"What are you saying?"

"The wild Outsiders aren't all that different from us chemically. It took Fancy to remind me of this. The same techniques we use to make our workers tractable, domesticated and yielding to the Hive's needs will work on Outsiders."

"In their food?"

"Or their water or even their air."

"Are you sure Fancy will return?" Saldo could not keep down the niggling doubt.

"I'm sure."

"But the bicycle—"

"Do you really think they'll identify it?"

"We cannot risk that they will!"

"If it makes you feel better, warn Linc about this possibility. I think Peruge's senses will be so dulled after a night of hyped-up breeding with Fancy that he wouldn't even recognize a bicycle when he saw it."

Saldo frowned. There was a manic note to Hellstrom's manner and voice that was deeply disturbing. "I don't like this, Nils."

"You will," Hellstrom assured him. "Trust me. Tell Linc you are sending in a special security team. I want their instructions to be explicit, no misunderstandings. Go over them with the utmost care. They are not to interfere tonight. Their major task is to insure that Fancy is not removed from that motel. She must spend an uninterrupted night with Peruge. In the morning, they are to collect her at the first opportunity and bring her to me. I wish to thank her in person. The Hive does learn—it does react to danger as a single organism. It is just as I have always suspected."

"I agree we should make sure she gets back here," Saldo said. "But thank her?"

"Naturally."

"For what?"

"For reminding us that Outsiders share our chemistry."

XIX

> *Wisdom of the Hive:* The Superior Specialist, bred to the demands of our most basic needs, will win for us in the end.

PERUGE awoke in the gray dawn gloom, swimming up to consciousness from some faraway, energy-drained place. He turned his head to see the tangled confusion of his bed, came to the slow realization that he was alone in the bed and that this should be important information. A bicycle with a coat thrown over the handlebars stood against the wall beside the door. A crumpled white garment lay on the floor between bed and door. He stared at the bicycle, wondering why he felt that a bicycle should be so important.

A bicycle?

Water splashed in the bathroom. Someone was humming.

Fancy!

He pushed himself to a sitting position, his mind as muddled as the bed. Fancy! For the love of God! What had she used on him? He had a foggy remembrance of what he thought were eighteen orgasms. An aphrodisiac? If so, it was more potent than anything in his wildest fantasies.

Water still splashed in the bathroom. She was taking a shower. God! How could she move?

He tried to reassemble the night in his memory, met only the wildest confusion, a recurrent image of writhing flesh. He thought: *That was me! For God's sake! That was me!* What was that stuff Fancy had given him? Could that be Project 40, for the love of heaven? He wanted to laugh hysterically, but couldn't summon the strength. The sound of splashing water came to an abrupt stop. His attention moved to the bathroom door. Movement there, the voice humming. Where did she get the strength?

The door opened and Fancy emerged, a towel wrapped around her loins, another towel in her hands with which she was drying her hair.

"Good morning, lover," she said. She thought; *He looks completely used up.*

He stared at her without speaking, memory searching.

"Didn't you like breeding with me?" she asked.

That was it! he thought. That had been the thing he had tried to remember but couldn't until she spoke. *Breed with her?* Could she be one of those kooky, turned-on members of the new generation—sex for procreation only?

"What did you do to me?" he asked. His voice came out in a husky croaking which shocked him.

"Do? I just—"

He lifted his left arm to expose the area where she had injected him with that mysterious musky substance. Faint discoloration there revealed a subcutaneous bruise.

"Oh, that," she said. "Didn't you like it when you were hyped up?"

He levered himself back against the bed's headrest, adjusted a pillow behind him. God, he was tired. "Hyped," he said. "So you shot me with some kind of dope."

"I only gave you an additional store of what every male has when he's ready to breed," she said, knowing her tone betrayed her own puzzlement. Outsiders were so strange about breeding.

Peruge's head ached and he felt that her words increased the pain. He turned slowly, looked squarely at her. God! What a voluptuous body! He spoke painfully, but clearly. "What's this breeding crap?"

"I know you use other words for what we did," she explained, trying to sound reasonable, "but that's what we like to call it—breeding."

"We?"

"My—friends and I."

"You breed with them?"

"Sometimes."

He thought, *Crazy communal hopheads!* Could that be what Hellstrom was hiding—sex orgies and aphrodisiac drugs? Peruge felt a deep and sudden prurient envy. Suppose that was what these crazies did! Suppose they had regular parties such as the one he'd experienced with Fancy. It was wrong, of course. But what a hold an experience like that could get on a man! On a woman, too, no doubt.

It was criminal to do such things, but . . .

Fancy dropped her towels, began putting on her smock, seemingly with no more concern about her nudity than she had experienced the night before.

Despite his headache and profound lassitude, Peruge marveled at her sensuous grace. She was all woman!

AS SHE dressed, Fancy admitted to herself that she felt hungry and she wondered if Peruge had money to buy breakfast. She enjoyed the thought of exotic Outsider food, but she had not prepared herself with money from Hive stores before sneaking out.

I was in a hurry, she thought, and could not suppress a joyful giggle. The wild Outsider males were such fun when one hyped them, as

though their suppressed breeding energies had been stored up for just such an occasion.

As he watched Fancy dress, Peruge found his original worries about her returning. What had driven her to his bed? Breeding? Nonsense. She had come into possession of an undoubted aphrodisiac, though. He couldn't deny this. His own behavior in the night gave ample testimony to this.

Eighteen times!

Something was very sick up there at that farm.

Breeding!

"Have you had any babies?"

"Oh, several," she said, then realized it had been wrong to admit this. Her own training in Outsider sex inhibitions had been explicit on that score. Her personal experiences had reinforced the training. Now it was a potentially dangerous admission. Peruge had no way of knowing how old she was. Old enough to be his mother, no doubt. That Hive-difference between appearance and age was one of the things that could never be shared with Outsiders. She felt an abrupt resurgence of Hive-caution.

Her answer astonished him. "Several? Where are they?"

"Oh—with friends." She tried to act casual and unconcerned, but was now fully alert. Peruge must be diverted. "You want to breed some more?" she asked.

But Peruge was not to be shunted from this fascinating disclosure. "Don't you have a husband?"

"Oh, no."

"Who fathered your several children?" he asked, then realized he probably should have asked about fathers, plural.

His questions increased her nervousness. "I don't want to talk about it." Admitting that she had borne children had been a mistake. Hive-consciousness restored other memories of the night with Peruge, as well. The Outsider had made interesting admissions while in the throes of breeding ecstasy. There had been, for a time, a level of his deepest awareness completely open to her. Moving with an elaborate show of casualness, she crossed to the bicycle, took up the long fur coat, held it over her arm.

"Where are you going?" he demanded. He forced his legs off the edge of the bed, let them fall to the cold floor, which restored some of his energy. His head whirled with fatigue and there was an aching in his chest. What the hell had been in that shot? She had really used him up.

"I'm hungry," she explained. "Can I leave the bicycle while I go out and eat? Maybe we can breed some more later."

"Eat?" His stomach rebelled at the thought.

"There's a cafe just down the street," she said. "I'm very hungry—" she giggled—"after—"

She has to come back and get her damned bicycle, he thought. He realized he was no match for her in his present weakened condition. He would have a reception committee ready for her when she did return, though. He was going to unravel the mystery of Nils Hellstrom and the beginning of the thread was named Fancy.

"Just down to the cafe," he said,

as though he were explaining it to himself. He recalled seeing the neon sign.

"I like an—breakfast," she said and swallowed in a sudden chill. Nervousness had almost tripped her into saying "an Outsider breakfast." Outsider was a word one did not use with Outsiders. She covered her slip, asking, "Do you have any money? I sneaked out in such a hurry last night I didn't bring any."

Peruge gestured to his trousers on a chair across the room. "Hip pocket. Wallet." He put his head in his hands. The effort of sitting up had taken a frightening amount of his reserves, and the chest pain, the headache left him confused. He realized he was going to have to put out a tremendous effort to stand up. Maybe a cold shower would help. He heard Fancy fumbling for the money, couldn't bring himself to look at her.

Take it all! Damned bitch!

"I'm taking five dollars," she said. "Is that all right?"

I often pay more, he thought. But she obviously was no regular whore—or she would have taken all.

"Sure, anything you need."

"Should I bring you coffee or something?" she asked. He really did look sick. She found herself worrying about him.

Peruge swallowed an upsurge of nausea, gestured weakly. "No I, uh—I'll get something later."

"You're sure?"

"I'm sure."

"All right, then." His appearance worried her, but she reached for the door handle to let herself out. Perhaps he just needed a little more rest.

She called cheerfully as she opened the door, "I'll be right back."

"Wait," he said. He dropped his hands from his face, lifted his head with an application of conscious effort.

"Did you change your mind about my bringing you something?" she asked.

"No. I—just—wondered. So we *bred.* Do you expect to have a baby by me?"

"I certainly hope so. I'm right at the top of my fertility." She smiled disarmingly, added: "I'm going to go eat now. I'll be back before you know it. Everybody says I'm a fast eater."

She went out, closing the door briskly behind her.

FAST breeder, too, he thought. Her answer only added to his confusion. What the hell had he run into? A baby? Was this what Carlos had discovered? He had a sudden vision of the dapper Carlos Depeaux held in some subterranean bondage by Fancy and her friends, a continual hyped-up orgy with that mysterious aphrodisiac for as long as it lasted. Or for as long as Carlos lasted. Peruge tried to visualize a continual orgy of breeding—babies on an assembly line. Somehow he could not imagine Carlos fitting in. Certainly, he couldn't see Tymiena in it or even Porter. Tymiena had never struck him as the motherly type. And dry-as-dust Porter ran from intimate encounters with women.

Hellstrom was involved in some-

thing to do with sex, though—and it was probably dirty as hell.

Peruge rubbed a hand across his forehead. The motel had provided an in-room coffeemaker with paper packets of instant brew. He lurched to his feet, found the equipment in the closet alcove beside the bathroom door, heated water and made two cups. He drank it much too hot. His mouth felt scalded afterward, but the coffee gave him a lift and reduced the throbbing in his head. He could think a bit more clearly now. He put the front door on the chain latch and got out his transceiver.

The second signal burst at the mountains brought contact with Janvert. Peruge's hands were unsteady, but he brought a chair to the window, rested the equipment on the sill and set himself grimly to the task of reporting. They exchanged code-recognition signals and Peruge launched himself into the whole story of his night with Fancy, sparing nothing.

"Eighteen times?" Janvert sounded unbelieving.

"As nearly as I can remember."

"You must've had some time." The beam transceiver failed to mask Janvert's tone of cynical amusement.

"Don't give me any crap," Peruge growled. "She shot me full of something, an aphrodisiac or something, and I was just a big, eager bundle of flesh. See if you can keep this on a professional level, will you? We have to find out what it was that she gave me." He glanced down at the bruise on his arm.

"How do you propose doing that?"

"I'm going up there today. I may brace Hellstrom about it."

"That might not be too wise. Have you checked with HQ?. .

"The Chief wants—I've checked!" Christ! It was too difficult to explain that the Chief had ordered direct negotiations. This development couldn't change that. It only added to the things to be introduced in the negotiations.

"You play it cool," Janvert said. "Remember, we already have three people missing."

Did Janvert take him for an idiot, for Christ's sake?

Peruge massaged his right temple. God, his head felt as empty as his body. She had really drained him.

"How did this dame get down from the farm?" Janvert asked. "Nightwatch didn't report any car headlights out that way."

"She rode a bicycle, you damn fool! Didn't I already tell you that?"

"No, you didn't. Are you sure you're feeling all right?"

"I'm just a little tired."

"That I can understand." *There he went with the goddamned humor again!* "So she rode a bicycle. You know, that's interesting."

"What's interesting?"

"Carlos was a bicycle nut. The Portland office said he took a bike with him in the van. Remember?"

Peruge glanced back at the bicycle leaning against the wall. He *did* remember, now that Shorty mentioned it. A bicycle. Was that possible? By any stretch of good fortune, could that set of flimsy wheels be linked to Depeaux? "Do we have a serial number or

anything else to identify Carlos's bicycle?" he asked.

"Maybe. There might even be fingerprints. Where's this bicycle now?"

"Right here in the room with me. I'm bike-sitting while she gets breakfast." He recalled his original resolve then. Christ almighty! His mind was going! "Shorty," he barked, some of his old strength returning for a moment, "you get a team down here as soon as you can. Collect this bicycle, yes, but we have to get our hands on Fancy for a long and thorough interrogation."

"That's more like it," Janvert said. "DT is right here listening to us and he's all hot to go."

"No." DT had to stay there and keep an eye on Janvert. The Chief had been explicit about that. "Send Sampson's team."

"DT is seeing to it. They'll be on their way in just a minute."

"Tell them to hurry, will you? I know only one way of delaying this dame and after last night I'm really not up to it."

XX

The words of Nils Hellstrom: I remember my childhood in the Hive as the happiest period, the happiest experience a human could ever enjoy. Nothing I needed was denied me. I knew that all around me were people who would protect me with their lives. It came to me only gradually that I owed these people the same full measure of payment were it ever demanded of me. What a profound thing the insects have taught us! How different it is from the wild opinions about insects current Outside. Hollywood, for instance, has long contended that the mere threat of having an insect crawl upon your face is enough to make a grown man beg for mercy and tell every secret he ever knew. Philosopher Harl, the wisest of his specialty among us, tells me that from childhood nightmares to adult psychosis, the insect is a common horror fixation in the Outsider's mind. How strange it is that Outsiders cannot look beyond the insect's great strength and efficient face to see the lesson embodied there for us all. Lesson one, of course, is that the insect is never afraid to die for his bretheren.

"HOW could they let those Outsiders get away with that bicycle?" Hellstrom stormed.

He stood almost in the center of Hive Central Security, a chamber deep within the Hive that could tap into and repeat the data collected from any of its internal and external sensors. The room lacked only the positive direct visual backup of the barn aerie to make it the most important Security post in the Hive. Hellstrom often preferred this backup post to the aerie. The sense of bustling workers whose activities spread outward all around gave him a feeling of protection he believed helped his thought processes.

Saldo, who had made the report,

shuddered under the combined weight of Hellstrom's wrath and his own complex personal knowledge—not only of the danger this development brought, but of the judgment error which went directly back to the Prime Male. Saldo was shaken in his innermost being. If only Hellstrom had heeded the words of warning. If only— But it would not be wise to remind Hellstrom of this as yet.

"Our surveillance workers did not know what was happening until too late," Saldo explained. "Fancy had emerged earlier and they were lulled into a sense of complacency. A closed truck drove up. Four men went into Peruge's room and two of them emerged, bringing the bicycle. They were driving away with it before our people could get across the street to try to stop them. We pursued, but they were prepared for that and we were not. Another truck blocked our pursuit and let them get away. They were at the airport and the bicycle was gone before we could catch up."

Hellstrom closed his eyes. His mind felt clotted with foreboding. "And all this time, Fancy was down the street at the restaurant eating Outsider foods."

"We've always known how she is about that," Saldo said. "It's a defect." He made the vat sign, eyebrows raised questioningly.

"No." Hellstrom shook his head. "Don't be too quick to discount her value to us. Fancy's not yet ready for the vats. Where is she right now?"

"Still at the restaurant."

"I thought I ordered her brought in."

Saldo shrugged.

Of course, Hellstrom thought. The workers were fond of Fancy and many of them knew about her defect. What harm was there in letting her finish a meal of exotic Outsider food? Fondness could be a defect, too. "Have her picked up and brought back immediately," he ordered.

"I should have ordered that myself at once," Saldo admitted. "No excuse. I was at my station monitoring our communications with town when— No excuse. All I thought of was hurrying down the gallery to you."

"I understand." Hellstrom indicated a communications console ahead of him.

Saldo moved to the station quickly, relayed Hellstrom's order. It felt good to be taking positive action, but his deeper disturbance was not eased. What did Hellstrom mean with his mysterious allusions to Fancy's value? How could she possibly help save the Hive with her behavior? But the Older Ones often did know things denied to the younger. Most of the Hive's workers knew this. It did not seem possible that Fancy was helping, but the possibility could not be denied in the face of Hellstrom's positive assertion.

The words of Nils Hellstrom:
There is another respect in which we must guard against becoming too much like the insects upon whom we pattern our design for human survival. The insect has been called a walking digestive tract. This is

not without reason. To support his own life an insect will consume as much as a hundred times his own weight each day—which to each of us would be like eating an entire cow, a herd of thirty each month. To those who have witnessed the insect's profligate display of appetite the outcome is clear. If allowed to continue on his reproductive rampage, the insect would defoliate Earth. Thus, with our lesson from the insect, comes a clear warning. If the race for food is to be the deciding conflict, let no one say it came without this warning. From the beginning of time wild humans have stood helpless, watching the very soil they nurtured give birth to a competitor that could outeat them. Just as we must not let our teacher, the insect, consume what we require for survival, we must not launch a similar rampage of our own. The pace of our planet's growing cycle cannot be denied. It is possible for insects or for man to destroy in a single week what could have fed millions for an entire year.

"We lifted all of the prints we could en route and put everything on a chartered plane to Portland," Janvert said over the laser transceiver. "The preliminary report says some of the prints match the ones from the dame in your room. Have our boys picked her up yet?"

"She got away," Peruge growled.

Clad only in a light robe, he sat in front of the window, looking out at the morning light on the mountain and trying to keep his mind focused on the report. To do so was becoming increasingly difficult. His chest ached with a demanding persistence and every movement took so much energy each time he wondered if he had any reserves left.

"What happened?" Janvert asked. "Did our team slip up?"

"No. I should have sent them to the cafe. We saw her come out and head back here, but three men drove up and intercepted her."

"They grabbed her?"

"There was no struggle. Fancy just jumped into the car with them and they drove off. Our people weren't in position. The van that helped us get away with the bike wasn't back yet. Sampson ran out when we saw what was happening, but it all happened too quickly."

"She's back at the farm, eh?"

"I'm sure of it."

"Did you get a license number?"

"They were too far away—but the number makes little difference."

"So she just went along with them?"

"That's how it seemed. Sampson thought she looked unhappy about it, but she didn't argue."

"Probably unhappy that she couldn't come back and play with you some more," Janvert said.

"Stuff that," Peruge snapped, then put a hand to his head. His brain felt blocked off, not working at all normally. He felt hemmed in by details and was aware of things slipping away from him. He really needed to take a cold shower, snap

out of this fog and get ready to return to the farm.

"I've been referring to the files," Janvert said. "This Fancy fits the description of the Fancy Kalotermi who's an officer of Hellstrom's corporation."

Peruge sighed. "I know, I know."

"You feeling all right?" Janvert asked. "You're sounding a little off your feed. Maybe that shot she gave you—"

"I'm okay."

"You don't sound it. We don't know what was in that stuff she used to charge you up last night. Maybe you'd better go out for a physical and we send in the second team."

"Meaning you," Peruge growled.

"Why should you have all the fun?"

"I told you to stuff that. I'm all right. I'll take a shower and get ready to go pretty soon. We have to find out how she did what she did."

"I want to be the first to know," Janvert quipped.

Damn fool! Peruge raged, rubbing his head. God, how his head ached—and his chest. He had to go out on a job as touchy as this one and have to rely on a clown to back him up! It was too late too change that now, though. Peruge felt his hand tremble against his forehead.

"You still there?" Janvert asked.

Peruge winced at the sound. "I'm here."

"Wouldn't it be a gas if this Project Forty turned out to be an aphrodisiac?"

SHORTY was impossible. He was the perfect antithesis of everything Peruge needed right now. There was no doubt of the malice in Janvert's responses, no doubt of the man's unreliability. What could be done to change that now, though? The teams were scattered all over the area. And he had to be up at that damned farm in a couple of hours. He didn't know how he was going to manage that, but he had to. For a moment he tried to consider that Janvert's cynical banter might contain a small seed of good sense. The effort was futile. What had that shot contained? Christ! If he could get a corner on that he would make more than with ten metallurgical processes. Make a fortune under the counter.

"You're taking an awful long time between answers," Janvert said. "I'm going to send Clovis down to have a look at you. She's had some nursing experience and—"

"She stays right there with you. That's an order."

"That dame could have done a helluva lot more than just charge you up as a bed partner," Janvert argued.

"That's all it was, dammit!" But Shorty's words carried the seeds of panic. The night with Fancy had distorted his perceptions of many things, including his idea of woman. The uninhibited little slut!

"I don't like the way you sound at all," Janvert said. "Is Sampson still around?"

"I sent him back up to you."

"The backup van isn't here yet. What if we—"

"You contact them the way I told you and get them back up there! You hear me, Shorty?"

"But that would leave you in town alone. Hellstrom's crowd could have a team there and we wouldn't."

"They won't dare to attack me."

"I think you're wrong. I think they may already have attacked you. That town could be completely in their hands. The deputy sure as hell is."

"I'm ordering you to stay up there with all of your teams," Peruge said.

"We could have you at a clinic in Portland within two hours," Janvert said. "I'm going to call for—"

"I am ordering you not to contact headquarters," Peruge said.

"I think you're out of your mind. A clinic might be able to examine you and tell us what was in that shot."

"Not likely. Christ! She said it was—a hormone or something."

"You believe that?"

"It's probably true. Sign off now and do what I told you." He dropped a hand onto his own cut-off switch, heard the blip as the transceiver went dead.

Damn! Everything took so damned much energy.

Willing every movement, he put away the transceiver, went into the bathroom. A cold shower. That was what he needed. If he could only get fully awake. The bathroom still showed the scattered wetness of Fancy's ablutions. He stepped into the tub, supported himself with a hand on the showerhead while he groped for the faucet. Cold water. He turned it on full. At the first shock of the chilling stream, he felt a sharp band of pain tighten on his forehead and chest. He staggered from the tub, trying to breathe, left the water running. He stumbled from the bathroom, dripping, knocked the remains of his coffee-making from the counter as he passed, but didn't even hear it. The bed! He needed the bed. He flopped his wet body onto the bed, rolled onto his back. His chest was on fire, his skin trembling with a deep chill. It was so cold! He arched his back, tried to pull the bedding around himself, but his fingers lost their grip and his suddenly out-flung hand fell over the edge of the bed. He was dead before his relaxing fingers touched the floor.

XXI

The words of Nils Hellstrom: In the sense popularly believed Outside, it is not possible to fight back against any aspect of nature. What must be understood is that we fit ourselves into existing patterns, adapting as our influence upon those processes brings about its inevitable change. The way the wild Outsiders fight insects is particularly enlightening. By opposing themselves to a powerful aspect of existing processed the wild one unwittingly add fuel to the defenses of those they oppose. The Outsiders' poisons bring instant death to most insects. But the few who survive will develop an immunity, a tolerance to ingest the poison with no harmful effect. Returning to the womb of the Earth, these

survivors pass on this immunity to new generations of billions.

THE Hive seemed always so neat, efficient and reassuring after she had been Outside, Fancy thought. She admired the way her fellow workers moved about their tasks without fuss, with that quiet, purposeful air of knowing what they did. Even the escort taking her down the familiar galleries, down the relays of elevators, gave off this same air. She did not think of these people as her captors. They were fellow workers. It was good to get out of the Hive occasionally, but so much better to come back. Especially with the almost certain knowledge that she had added to the Hive's gene store by last night's foray. The Hive comforted her mind and body now just by its presence around her.

Outsiders could be great sport, too—especially the randy wild males. In her fifty-eight years, Fancy had brought nine Outsider-fathered babies into the Hive, each one of them concealed in the mysterious fecundity of her body. Hers was a great contribution to the gene pool. She understood gene pools just as she understood insects. She was a specialist. Outsider males and ants were her special favorites.

Sometimes as she watched an ant colony in the lab, Fancy felt that there might be a way for her to move right into the colony, perhaps even become its broodmother. It might merely require a period of chemical acclimatization for her charges to accept her as one of their own. In her fantasy, she could imagine the escort which now took her deep into the Hive as her own Queen's guard. She would be the ant-queen. And the strange thing was that ants did tend to accept her. Ants, mosquitoes, many different kinds of insects showed no disturbance at Fancy's intrusions. Whenever she thought of this and conjured up attendant fantasies it was easy for her to imagine the Hive as her colony.

So firmly had imagination taken hold of Fancy's consciousness that when the escort brought her into Hellstrom's presence, she looked upon him at first with queenly condescension and failed to observe his overwrought condition and tension.

Hellstrom noted that she still wore the fur coat she'd taken from wardrobe and she appeared mighty proud of herself. He nodded to dismiss her guards. They retreated into the background, but remained alert and observing. Saldo's orders had been explicit about that. Much of Security was growing to recognize that Saldo possessed qualities that demanded obedience. In this room of the Hive's inner security processes at least half of the workers had begun to harbor divided loyalties.

"Well, Fancy," Hellstrom said, his voice tired but carefully neutral.

She perched on a corner of Hellstrom's desk, grinned at him.

Hellstrom took the chair behind the desk, sank into it, looked up at her. "Fancy, would you try to explain to me what you thought you were doing in last night's escapade?"

"I merely spent the night

breeding with your dangerous Mr. Peruge. He was about as fearsome as any other Outsider male I've ever met."

"You took supplies from Hives stores," Hellstrom said. "Tell me about that."

"Just this coat and a shot of our own male breeder hormones," she said. "I hyped him up."

"Did he respond?"

"Just as the others always did."

"You've done this before?"

"Lots of times." Hellstrom was acting strangely, she thought.

Hellstrom nodded to himself, tried to read another message into Fancy's responses, something to confirm his suspicion that she was acting out of an awareness of the Hive's most fundamental needs. Additions to the gene pool were beneficial, yes; and Peruge's genes would be most welcome. But she had taken a prized Hive secret Outside, risked Outsider discovery that the Hive possessed a profound knowledge of the workings of human hormones. By her present admission, she had done so more than once. If Outsiders learned some of the things the Hive could do in manipulation of human chemistry more problems would arise.

"Did you ever discuss this with anyone?" Hellstrom asked. Surely, some circumstance must exist to explain her behavior.

"I've talked about it with many of the breeder females," she said. What could possibly be bothering old Nils? She saw now that he was working against deep tensions.

"Your only discussions have been with breeder females?"

"Yes. Many of us use the hormones when we go Outside."

Shocked, Hellstrom shook his head. *Blessed Broodmother!* And none of the Hive's ruling specialists had ever once suspected! What else might be going on in the Hive?

"Peruge's friends have the bicycle," Hellstrom said.

She looked at him, not understanding.

"The bicycle you took when you sneaked into town," Hellstrom explained.

"Oh. The workers who picked me up were so insistent they made me forget all about it."

"By taking that bicycle, you've created a crisis," Hellstrom said.

"How?"

"Don't you recall where we got that bicycle?"

SHE put a hand over her mouth in sudden comprehension. All she had been thinking about a quick way to get into town when she had borrowed the machine. A certain amount of pride had also been involved in the action. She was one of the few workers who had learned how to manage a bicycle Outside. She had demonstrated her ability for the engineers during the preceeding week, even taught one of them to ride it. But her ingrained Hive-protective sense was fully aroused now. If that bicycle could be traced to the couple the workers had thrown into the vats. . .

"What can I do to get it back?" she asked.

This is the Fancy I can work with and admire, Hellstrom thought, responding to her sudden alertness.

"I don't yet know," he told her.

"Peruge is coming to see you today," she said. "Can I demand that he return it to me?"

"It's too late for that. They've sent it away in an airplane. That must mean they suspect."

She nodded. She knew about fingerprints and serial numbers.

"Our best move may be to deny that we ever had that bicycle."

"No telling who may have seen you on it," Hellstrom said.

And he thought sadly to himself: *Our best move may be to deny that Fancy exists. We have others with a close enough resemblance to her face and body.* Were her fingerprints likely to be on any of the documents she had signed as Fancy Kalotermi? Not likely—they had since been handled by many.

"I've done wrong, haven't I?" Fancy asked, beginning to grasp the extent of the problem she had created.

"It was wrong for you and other females to take Hive stores Outside. It was wrong to take that bicycle."

"The bicycle—I see that now," she admitted. "But the breederhyps only insured fertilization."

Even as she spoke Hive-honesty forced Fancy to admit to herself that this didn't explain fully why she and the others used Hive stores this way. It had been an experiment at first, then a delightful discovery of how susceptible Outsider males were. She had shared the discovery with a few sisters. They had made up their own stories to explain to Outsider males who became curious. This was an expensive new drug they had stolen. They might not be able to get more of it. Better to use it while they had it.

"You must name all of the females who shared your little trick," Hellstrom said.

"Oh, Nils!"

"You must and you know it. All of you will give us detailed accounts concerning the reactions of Outsider males, how curious any of them may have been, who they were, how many times you've raided Hive stores this way, everything."

She nodded dejectedly. It would have to be done, of course. The fun was ended.

"On the basis of our review we may conduct some experiments Outside, fully controlled and observed," Hellstrom said. "For that reason be explicitly detailed in your account. Anything you recall could be valuable."

"Yes, Nils." She felt contrite now, but secretly elated. Perhaps the fun wasn't ended. Controlled experiments meant further use of Hive methods on Outsiders. Who better qualified for such a project than those already experienced?

"Fancy, Fancy," Hellstrom said, shaking his head. "The Hive has never been in greater peril and you continue to play your games."

She clasped her arms around her body, hugging herself.

"Why?" he asked. "Why?"

She remained wordless.

"We could even be forced to send you to the vats," Hellstrom said.

Her eyes went wide in alarm. She slipped off the desk, stood facing Hellstrom. The vats! But she was still young. She had many years of breeding service ahead of her. They

needed her talents with the insects, too. Nobody was better than she was with the insects! She began to voice these arguments, but Hellstrom cut her short.

"Fancy. The Hive comes first."

His words shocked her and she recalled suddenly the thing she had reminded herself to tell Hellstrom. Certainly the Hive came first! Did he think her a moral reject?

"I have something else to report," she said. "It may be important."

"Oh?"

"The hyp hit Peruge very hard. He thought I was asking him questions at one point. I wasn't, but when I recognized what he was doing, I did ask questions. He wasn't fully awake, just reacting. I think he spoke the truth."

"What did he say? Out with it."

"He said he had come to make a deal with you. He said their study of the papers they had found—about Project Forty, you understand—had led them to believe you were developing a new way to shape metals. Steel, that sort of metal. He said a metallurgical breakthrough could be worth billions. What he said didn't always make sense, but that was the gist of it."

Hellstrom felt such elation at her words he wanted to get up and hug her. The Hive *had* been working through her!

SALDO came into the room as these thoughts/emotions coursed through Hellstrom and Hellstrom almost called the young male over to explain. Fancy's discovery gave the Hive, a way out. The invasion was commercial. The discovery confirmed Hellstrom's instincts about Hive-learning. The lab would have to be told immediately. This might even help the Hive scientists in their own researches. The wild Outsiders sometimes came up with rare insights.

"Have I helped?" Fancy asked.

"Indeed you have."

Saldo had stopped for a few words with one of the observers at the bank of instruments. He glanced across at Hellstrom, shook his head. Peruge was not yet on his way, then. Saldo had been instructed to give word at the first sign of Peruge. Hellstrom wanted Peruge to come now.

Metallurgy? Inventions? All of those mysterious allusions by Peruge now made sense—a remarkable degree of sense.

Fancy still stood at the desk watching Hellstrom.

"Did Peruge say anything else?" Hellstrom asked.

"No." She shook her head.

"Nothing about the agency that sent him, the government agency?"

"Well, he did say something about somebody named Chief. He hates Chief. He cursed horribly."

"You have helped enormously," Hellstrom said, "but you must go into hiding now."

"Hiding?"

"Yes. You've helped in many ways. I don't even mind any longer that you stole Hive stores. You've reminded us that we share the same body chemistry with Outsiders. We've changed somewhat in three hundred years, of course, because we've bred for change, but—" He gave her a brilliant smile. "Fancy,

you must do nothing else now without consulting us."

"I won't. I really won't."

"Very good. Was Mimeca one of the breeder females you shared this little trick with?"

"Yes."

"Excellent. I want you—" He hesitated, taking in her pale face, the expectant expression. "Is there any chance that last night's escapade was successful, that you're impregnated?"

"A very good chance." She brightened. "I'm right at peak fertility. I've become pretty good at judging it."

"See if the gestation lab can confirm that," he said. "If test results are positive your period of hiding should be pleasant enough. If you've been impregnated, turn yourself in at Worker Gestation Prime. Tell them it's at my instructions. Don't go on dormancy, though, until we've sent someone down to interrogate you on your use of breeder-hyp with Outsiders."

"I won't, Nils. I'll go down to the lab right away."

She turned, hurried across the chamber. Several workers looked up at her passage. She probably still trailed some of the hyp. Hellstrom had been too busy to notice. She was really a ridiculous female, he thought. What had they bred in this Fancy line?

Saldo approached Hellstrom's alcove, looking back at Fancy until she had left the chamber.

Hellstrom rubbed his chin. He kept himself on hair suppressants during most of his Hive days, but the beard insisted on growing anyway. He needed a shave and would have to get one before meeting Peruge. Appearance was important with Outsiders.

So it was metallurgy and inventions, was it?

As Saldo stopped just inside the alcove, Hellstrom asked absently; "What do you want?"

"I listened while you were talking to Fancy," Saldo said.

"You heard what she said about Peruge?"

"Yes."

"Do you still think you were at fault in letting her out of the Hive?" Hellstrom asked.

"I—" Saldo shrugged.

"It was the Hive working things out in spite of us," Hellstrom said. "The whole Hive can react as a single organism or it can react delicately through any one of us. Remember that."

"If you say so," Saldo said. He didn't sound as though he believed this, however.

"I say so. Oh, and when you interrogate Fancy I want you to be gentle with her."

"Gentle? She endangered the—"

"She did not. She gave us our escape hatch. You will be gentle with her. And with the other females, too—the ones she names."

"Yes, Nils." Saldo felt that these orders went against reason, but he could not bring himself to outright disobedience of the Prime Male.

Hellstrom stood up, moved around the desk and headed out of the chamber.

"Will you be in your cell if I need you?" Saldo asked.

"Yes. Have me called the instant Peruge is sighted."

TO BE CONCLUDED

T. J. GORDON

REFLEX

Something may stir
even where life does not . . .



Reflex actions consist of comparatively simple segments of behavior in which the reactions usually occur as direct and immediate responses to particular stimuli uniquely correlated with them. Reflex actions have a widespread occurence . . .

—*Encyclopedia Britannica*
Vol. XIX-1970

STAND out to sea, south of San Francisco, and look at the coast. It requires little imagination to visualize a gigantic beast out of the remote past rising from the shallows, trying to draw himself ashore. Your mind can see him strain, imagine his anguish as he fails and slips protestingly back into the sea, leaving great gouges in the land. The sea, the eternal healer, does her best to repair the damage, to fill the gouges, and thus are born the beaches. Cup-shaped, they pock the coast from San Francisco to Monterey in numbers beyond counting. Some, large and crowded, bear names like Thorntor, Half Moon, Pomponio, Butano. Others, small and hidden from the casual traveler by rugged bluffs and dense chaparral, have no names.

At the north end of one such nameless beach the rugged shoulder of a brush-covered bluff plummets precipitously into the sea. At the south end a jumble of monolithic rock mutely accepts the eternal onslaught of the surf. The highway is far above the sand, unseen, its traffic unheard. Far out to sea a gleaming white sail slides north. It will stay out to sea. Seen from its deck, this tiny beach is insignificant. From this beach, for two people newly married and much in love, the sail and rest of the world, ignored and ignoring, are equally insignificant.

Vaughn Harding awoke slowly, savoring the delicious warmth of the sun in his face, the yielding sand beneath him, the gentle, irregular crashing of the surf. *Race you to the water, Carol,* he said sleepily. His words echoed flatly, a dull metal sound. He listened uncertainly to the ragged surging of the surf and a gentle coldness gripped his gut. Softly, he said, *Carol?* and opened his eyes.

The coldness in his belly tightened. Brows knotted in concentration, Harding blinked rapidly to clear the red haze before him. Comprehension hovered maddeningly out of reach, taunting him with small, disconnected bits of understanding. Images, infuriatingly dreamlike, floated through his awareness. The beach . . . a walk with Carol . . . down the hill, through . . . but Carol . . .

Harding groaned and tried to sit up. Agony lanced like a hot knife through his left wrist, arm, shoulder. Before he could utter a cry blackness engulfed him. . .

They sat together and watched

the sun slip beneath the horizon, watched the gathering of darkness. At length he touched her auburn hair with his lips and said, *C'mon, honey, let's get up before it's too dark to see.* She remained silent and he sat enveloped in the fragrance of her hair. *Carol?* he said softly.

She drew away, turned to face him. Her eyes shimmeringly reflected the lingeringly bright horizon. He folded her in his arms and felt her tears on his shoulder.

Darling, he said soothingly, *I thought we were all through with this—I thought you promised no more tears.*

I'm sorry, Vaughn. But I'm scared. It seems like such a long time and I'm afraid you won't come back. I wish you wouldn't go.

Honey, don't be like this—there isn't anything to worry about. He gripped her shoulders and looked intently into her eyes. *I promise you, Carol, I'll quit as soon as I get back. We'll have the rest of our lives together and thirty thousand Federation credits a year for retirement pay. Three months seems like an awfully small price to pay for that, doesn't it?*

She blurted: *No amount of money is worth your not coming back. They wouldn't pay you that much if it weren't so dangerous!*

He said firmly, a touch of exasperation in his voice, *It is not dangerous—it's a perfectly safe assignment. They pay as they do because that's how it is on the books. When the Charter was established this was a dangerous job, but that was two hundred years ago. The job's changed, honey, but the Charter hasn't—you know the Federation never changes anything it doesn't have to. This deal is a give-away—I sit on my duff and collect hazard pay for doing a job that hasn't seen a hazard for two hundred years! And then I'll be home again.*

She looked at the darkening horizon for a long time before she murmured, *Three months, Vaughn . . .*

GRADUALLY the comfortable, drowsy warmth that enfolded Harding like a blanket was disturbed by a throbbing in his arm. Slowly the cottony emptiness in his mind was displaced by hints and traces of memories, mocking at first, then disjointedly comprehensible. . .

. . . *terrestrial, of course,* said Senator Williams dryly. The joke was standard and had long since been divested of whatever humor it had once possessed. Even in the small corner of the galaxy that had become familiar there were so many satellites orbiting so many planets that unless given a planetary referent the term "month" was meaningless. Such definition did not exist in the Charter, however—a condition out of which inevitably grew the horror story

about the man (nobody could remember his name) assigned to a planet (exactly which one escaped the teller's memory at the moment) for a standard three-month tenure who, after spending seventy-six Earth-standard years there, had "only two months to go." The story, rolled out in grim seriousness to wide-eyed recruits whose gullibility lay not in believing it, but in thinking they were supposed to, predictably gave rise to the question asked with profound sincerity and tongue scarcely noticeably in cheek, *That is three months* terrestrial, *isn't it, sir?*

Harding suppressed a dutiful chuckle.

The Senator, satisfied, went on candidly: *Damnably silly anyway —if you ask me.*

Sir?

Oh, you know. All this garbage about a three-month habitation. He stared popeyed at Harding, who stirred uncomfortably in his chair and said nothing. *You needn't worry, Harding. I'm not going to jerk your soft retirement out from under you. I just think it's a terrible waste of Federation resources—a pointless expenditure of money that could well be put to more humanitarian projects. The continued exploration under the Charter, the maintenance of a Corps of Volunteers—the whole thing is a shining monument to the empty-headed imbecility of the Congress.*

Harding fidgeted under Williams' glare and said uncertainly, *I don't understand why you feel the way you do.*

Williams waved impatiently. *You can't figure out why I'm on the Committee, is that it? Simply a concession to the Humanist party—I was appointed. And I must admit that when I was appointed I didn't feel this way. But I've learned a lot since then. I've changed my views a great deal, which is of some embarrassment to my colleagues, as it appears that Senators on this Committee are supposed to remain inflexibly prejudice. Look*—he stabbed a thick finger at Harding—*in the first place it's asinine to have the whole operation of Charter activities directed by a Senate committee. What do we know about space flight, about stellar navigation and celestial mechanics and the rest of it? Nothing! We have to assemble a huge staff of military experts to run things for us. But do we turn the Charter operations over to them, as we logically should? We do not! The Charter Committee provides too good a featherbed for too many rhetorically minded Senators who, without it, might have to go to work. So the Committee remains to waste money and have patriotic platitudes mouthed about it.*

But the political aspects, sir, began Harding. *What about—*

Hah! erupted Williams. *Political aspects! What political aspects? Look—two hundred years ago we*

had taken our first trembling steps into the universe. We had a fairly large permanent colony on the moon. We had a ten-man scientific mission on Mars. We had made the first manned landing on Venus. We found traces of organic material on the moon. We found fungus on Mars. Fungus! We found more organic matter on Venus. We'd found life or its presumed traces on three bodies in the solar system, not to mention the generally accepted existence of intelligent life on our own planet. The Federation drew in its skirts and decided that the odds overwhelmingly favored our encountering other intelligent life in the galaxy. So they did two things. They extablished the Charter, primarily to assure that we included in the Federation no planet already claimed by another civilization. That we did not was checked out by the three-month residency requirement—if no supermen from out there showed up in the three-month period we stayed on a planet it was assumed to be unclaimed by anyone else. Next they established the Charter Committee to be the Federation representatives in the event that we did encounter another sapient race. There are your political aspects! What do you think of them?

Harding smiled weakly. *Well, it all seems logical to me, sir.*

Logical? fumed the Senator. *Logical? What's happened since the Charter was established, Harding? What's been the history of the Charter operations?*

I—ah, I don't know too much—

Of course you don't! It's classified—all classified! If it weren't, if the public knew anything about it, the whole charade would collapse. Harding—Williams thumped the desk with a meaty fist to emphasize his words—*we have discovered, inhabited and incorporated into the Federation more than forty-three hundred planets. Among all forty-three hundred of those planets, do you know on how many we have encountered life? Seven! Seven planets—and I use the term "life" loosely. We have discovered a fungus on three of those seven, a bacterial form on two others and traces of organic compounds on the two remaining. Where are the mighty civilizations this Committee is preparing to deal with? Where is the super-race from beyond the galaxy whom we dare not offend by claiming territorial rights to one of their planets? Fungus! I fully expect that we shall some day encounter a mighty starship being flown across the breadth of the galaxy by a highly intelligent, sapient mushroom! Fungus! Good God, Harding, if there is other intelligent life out there it's so damn thinly spread out that we won't find it in a million years. This whole Committee with its petty requirements is eminently stupid. Most of the members know it, although they won't admit it. And what's more,*

they knew it fifty years ago, during the credit panic. If the Committee had been abolished then, savings to the Federation would have been incalculable. But did they abolish it? Hell, no—it would have cost'em their precious goldbricking jobs. Instead, with a great show of pious concern for the economy of the Federation, they reduced from fifty to one the number of men required to inhabit a planet prior to its incorporation into the Federation. Habitation, they decided with undertakers' solemnity, might reasonably be performed within the intent of the Charter by a single individual. Those self-serving bastards! Not only did they keep their soft jobs, but they implied to the credulous public that they were saving untold amounts of money. And every last one of those men knew perfectly well that it's damn near as expensive to send one man a half-billion light-years out there as it is to send a hundred. It's not how many you send, it's the getting there that's so damn expensive.

Harding sat silent for a few moments, then cleared his throat uncomfortably. *If, ah, that's all, sir—*

Yes, Harding, that's all, said Williams wearily. *I hope my outburst didn't upset you. I get to brooding about my esteemed colleagues at times*—he made a grim face—*and it just pours out, like diarrhea.*

Williams stood abruptly. *Well, that's it, then,* he said briskly. *You'll be on the* Nebula, *Captain Holcombe commanding. Shuttle lift at oh-three-hundred tomorrow, slip twenty-seven. You can look forward to three months of relaxation or meditation or whatever you fellows do out there. Good luck, Harding. Enjoy yourself.*

Harding shook the proffered hand and turned to leave. At the door he hesitated and said, *Ah, Senator, there is one thing I'd like to make sure of before I go.*

Yes, Harding? What's that?

Well, I want to be sure that if I—that is, if anything happens, my wife will—ah, my pension—

It's all taken care of, said Williams gently. *She'll get it all. You needn't worry, though—nothing ever happens on these jaunts. I'd forgotten about your marrying until just now. What's her name again?*

Carol, sir; her name is Carol.

Her name is Carol.

Her name is Carol.

Her name is Carol.

Her name. . .

CAROL. God, how his arm hurt. Harding grimaced and very carefully sat upright. He pawed briefly at his faceplate and realized he could do nothing about the red haze before him.

"Blood," he muttered, the taste of it thick in his mouth. "You dumb slob. Stupid!"

He heaved a disgusted sigh and winced at the fire in his arm.

Slowly, painfully, he began to struggle to his feet. The agony was fierce—dizziness and nausea now washed over him in waves. Finally he stood, feet planted wide apart, eyes open and staring. He found that by cocking back his head he could see dimly through the relatively clear upper portion of the faceplate. He gazed at the undulating wall of sand before him and waited for the urge to vomit to subside.

What a dumb thing to do, he thought. What a dumb, stupid, rookie stunt. No, not even a rookie stunt. Any average rookie would have been too smart—or too scared, more likely—to go traipsing off across the country. But not Dumb Harding. No, old Dumb Harding, lacking even the sense God gave goats, had left the pressure dome and gone for a walk. Harding snorted at his folly. He had headed toward the dunes that were the only feature marring the otherwise perfect flatness of the plateau. They had been only about five kilometers distant and he had reached them with ease. He had wound his way through them, had come abruptly to the rift and stopped before it, feeling a tingle of excitement. The rift was not on the map so carefully prepared for him or on any of the photographs used to prepare it.

He had gone to within three or four meters of the edge and stared down expectantly. The possibility that he, Vaughn Harding, might confound Senator Williams and find intelligent life had been strong in his mind. His hope had been quickly quenched. Nothing had seemed unusual about the rift—it had simply been there, overlooked by photographers, unrepresented on the map.

The sound of the slide had carried faintly to him in the thin atmosphere and perhaps three seconds had passed before he had realized what was taking place. He had shouted "Look out!" to nobody and had started backpedaling frantically. He had not been fast enough. The collapsing rim of the rift had reached out toward him and he had suddenly tumbled, cartwheeled, plummeted down the steep side. He remembered a stunning impact as his body, weighing half again its Earth-normal 180 pounds had hit something solid, a momentary sensation of weightlessness, another crunching impact all but overshadowed by a violent, red-rimmed burst of pain. Then blackness and dreams, warm and fragrant with Carol.

His nausea subsided somewhat, and slowly Harding fished about in the voluminous pocket on his right leg. He withdrew a long nylon strap with aluminum clips on each end. Cautiously he wound it about his damaged left arm and his waist, eventually succeeding in immobilizing the arm. It was dreadfully uncomfortable, but would keep the arm from hampering him too

much. That done, he took a few experimental steps through the sand. As he did so, the gently insistent hissing that in his dream had been the surf intruded itself on his consciousness. He cocked his head back and looked up. The top of the rift was almost lost in blowing, swirling sand. After an open-mouthed moment, he said passionately, "You son of a bitch! You goddam son of a bitching wind!" This place, he thought bitterly, was full of surprises—first the rift, now the wind.

HARDING'S landing on the planet had been routine to the point of boredom. Except for the barren, sandy landscape outside the viewports he might have been in the Link back at Vandenburg. Not until the four contact lights glowed bright green could he be sure he was down. He put the power switches in the auto position, pulled the bus bar and reached for the radio.

Contact positive, landing affirmative. The natives of Kalahari II are rushing out with large signs saying "Earthling, go home." I think I see a camel over there—or maybe it's a hamburger stand.

Very funny, Harding. Kalahari II, for God's sake.

Holcombe, you have the vivid imagination of a rather dull toad. If you think I'm going to spend three months on this slagheap and call it KSC 3885 F, guess again. What would you call it, with all this sand? Never mind, never mind—I know what you'd call it: KSC 3885 F. Thank God you jug jockeys aren't the only people in the universe. I couldn't stand it.

Why, thank you, Vaughn, said Holcombe sweetly, *you are lucky to know me, only I didn't think you realized it. Why don't you build your house, worm, so we can take our offensive presence from your vicinity and live in peace for three months?*

Harding chuckled. Holcombe was twice his age and minus a leg, but he was damn good company. He would be missed. Quickly Harding scanned the gauges on the small instrument panel and, satisfied that the tiny ship was stable, opened the lock and engaged the short ladder. The ship was not pressurized—oxygen was too precious a commodity to be vented indiscriminately into space. Harding had donned his suit in the transport, and the oxygen in the small ship had been purged into the bigger one. No waste.

On the sandy surface Harding busied himself with the dome package. The push of a stud on the exterior of the little ship activated explosive bolts on the opposite side and three large panels flew away into the sand. From the exposed portion, like a large, gleaming spider, the ribs of the dome began to unfold. As they reached their farthest extension the panels between them popped into

place—soon the apparition took on the regular aspect of a shining hemisphere with the ship hanging on one side like a misshapen appendage. Harding walked slowly around the dome, inspecting it carefully. Satisfied with its appearance, he returned to the ship and pressed a second stud. The reports from four more explosive bolts sounded thinly in the alien atmosphere and the ship began to move. Electric motors whined and gears meshed and the center portion of the ship containing the instruments and engine rose on struts. The lower portion, containing the airlock and stores, settled squatly on the sand, its landing struts folding up like the legs of a grasshopper.

As it came to rest something caught Harding's eye.

Hey, Holcombe, the wind's blowing. Faint swirls and eddies of sand drifted around his ankles.

Right, Harding, returned Holcombe laconically. *Don't it always blow on Thursday?*

This is on the level, Holcombe. It's blowing the sand around down here. Harding sounded tense.

You sure it's not your imagination?

Damn it, Holcombe—

Okay, okay, take it easy. There is an atmosphere, you know. You probably just stirred it up a bit with your landing. First convection that place has seen in a million years. You know what the weather boys said—no meteorological hazards.

Easy enough for you to say, all nice and snug up there, said Harding. In the silence between words he could hear the faint murmur of sand against his suit.

Relax, friend. It'll be gone before I get around again. Think you can stop peeping under the bed, Granny, and get the ship ready to go? Holcombe sounded faintly amused.

Go to hell, Pop, snorted Harding. *Give me a mark.*

Yes, sir, said Holcombe, mealy-mouthed. *Coming up on one hundred minutes—mark! Got it?* His voice faded rapidly as the transport's orbit carried it toward the horizon.

Got it, affirmed Harding, *If you'll get off the horn I have work to do. See you later.*

See ya, came Holcombe's faint voice. Harding looked down at his feet and watched the sand drift gently over them. *No meteorological hazards,* he thought. No climate. A dead planet. Resolutely he turned to the dome.

The lower portion of the ship formed the airlock for the dome. He activated both the inner and the outer doors twice and, satisfied that they worked freely, closed them and began sealing the gasket between the lock and the dome.

One hundred minutes later the tiny instrument package leaped off the struts to rejoin the transport—it would be reused countless times on future landings. The struts re-

mained behind, a tower bearing radio antennae. Inside the dome Harding listened to the diminishing squeal of the rocket motor and was alone.

Holcombe's voice came over a speaker. *Locked on and tracking. Good shot, Harding. You all set down there?*

Roger, roger. Snug as hell. Airtight, warm—and this place is almost big enough to stand up in. Couldn't ask for more, he said, thinking wistfully of Carol.

Beautiful, said Holcombe. *What about your hurricane?*

Harding had forgotten about it in his rush to secure the dome. He looked carefully through the window and said, *No wind. Not a breath.*

Told ya.

Damn know-it-all. You make me sick.

Now, Harding, that's not nice. I might just forget to come back for you.

And miss my peerless company going home? I doubt it.

I guess you're right, said Holcombe slowly. *This ship ain't the same without its mascot. See you in three months, Vaughn.*

Terrestrial?

Ha-ha. Enjoy yourself.

Thanks, Holcombe. See you later. Holcombe made no reply and Harding shut off the radio. He looked again through the window at the sandy plain. No wind. *No meteorological hazards. . .*

HARDING gazed up at the sand-swirled wedge of sky above the rift and turned the nonsense syllables over and over in his mind, giving them a singsong quality. *No meterorological hazards—no meteorological hazards.* He shook his head to clear his thoughts and immediately regretted doing so as pain flared cruelly through his arm. Carefully he arched his good arm high into the air and peered over the bloodwash on his faceplate. The elapsed-time gauge on his wrist was barely visible—three hours gone, four left. He lowered his arm slowly, gazed up the side of the rift and felt a surge of frightened anger at himself, at Holcombe for bringing him here, at the Federation and its Charter. Favoring his damaged arm, he walked to the steep slope and started to climb.

The ascent was an opus in anguish. The loose sand slipped and sighed away beneath his feet, robbing him of two meters for each three he climbed. Periodically he went to his knees—only the excruciating jarring of his arm kept him from sinking into an exhausted faint. His legs ached, throbbed with overexertion and oxygen starvation. He stopped once to rest and began to slide inexorably back into the depths of the rift. After that he was afraid to stop again.

Through it all the wind whipped sand down over the edge above him, piling it up against the front of his

suit as fast, almost, as he could push through it. Slowly the grinding sand etched the smooth faceplate, lacing it with myriad tiny scratches, each insignificant alone, but in combination sufficient further to reduce his vision. He sweated heavily and the mixture of perspiration and blood ran down his collar, irritating him intolerably.

And still he climbed—step, step, step. His legs felt bathed in fire—they trembled uncontrollably. Only by putting his good hand on each leg in turn and leaning forward could he lock his knees—he no longer had the strength to do it otherwise. He sobbed in pain—his arm throbbed almost audibly. Centimeter by centimeter he made his uncertain way upward. After a seeming eternity of pain-punctuated frustration his shaking legs deserted him—he stumbled and fell forward. The impact of his fall elicited a yell of pain and disappointment. Gradually it came to him that he was not sliding back into the rift. He lay listening to the sand whisper against his helmet and slowly realized that he was out, that he was on level ground above the rift. Hard on the heels of that awareness came the recollection of his fall into the rift, of the collapsing rim reaching out for him and dragging him down in an avalanche of sand. Strength he didn't know he possessed flooded him and he was on his feet, running, stumbling, lurching on wobbly legs away from the rift. With each step his knees threatened to buckle and pitch him into the sand. With each step the pain in his arm blazed high, and long before it ebbed came another jarring step, another lance of pain. In a mounting crescendo the pain rose higher and higher until his whole universe consisted of hurt, jarring, thudding, unremitting agony. With a great, blinding crash the pain reached an impossible peak and was no more.

THE peaceful blue serenity of the ocean off the California coast belies its occasionally treacherous nature. Where tiny beaches pockmork the coast the current follows the shoreline, burying a deadly riptide just beneath the innocent-looking surface of the sea. There is an axiom for those who swim where the riptides lurk: if caught by the rip—don't fight it. Ride with it. Conserve your strength and eventually the tide will bring you close to shore and safety. It is an axiom suitable for quotation by those who venture to ankle- or knee-depth—an axiom espoused by those who remain in the shaded safety of their huge umbrellas. To one caught in the rip, helplessly treading water and watching the beach recede rapidly until the people are mere dots against the white sand, it is an axiom all too easily forgotten. In the grip of panic one swims re-

flexively, striving for shore without thought, realizing only too late that he strives in vain.

Harding knew he was drowning. He struggled feebly, knowing his struggle was almost over. Distantly he promised himself that if ever again he was caught in a rip. . . But that, of course, was pointless. There would be no more rips—this was his last swim. He felt vaguely apologetic, aware that Carol would be upset and embarrassed by his ignominious death. His reflexes overrode his willpower and he took a salt unwilling gasp of seawater. He could hear the approaching surf, and wondered dimly if he would survive long enough to be pounded to jelly on the rocks—he had not the strength to fight the slamming surf. He took another deep, reflexive breath of the sea—it forcefully expelled itself and his body demanded that he draw another and another and. . .

"JESUS," he muttered. Reaching up behind his helmet, he opened the valve on the reserve oxygen tank and lay breathing deeply of the cool, fresh air. Reserve tank, he thought—that meant two hours left. Two hours. But he was out of the rift now and it was level ground all the way to the dome. When finally his breathing returned to normal he rose gingerly to his feet, wary and distrustful of his shuddering legs. He tightened the cinch on his arm, grunting in pain as he did so, and activated the receiver in his helmet. From the earphones came the musical *ping-ping, ping-ping* of the homer. Harding muttered, "Damnation!" and, turning forty-five degrees to his left, began to march unsteadily through the blowing sand. Once he stopped and peered ahead, cocking back his head. Nothing. His visibility was reduced to fifty meter by the obscured faceplate and the blowing sand. Resolutely he plodded on.

The homer was a simple device, a relic of the days that saw atmospheric aircraft on Earth flown by fallible, human pilots. It sent out a tight-beam radio signal in a preset direction—the classic Morse code for the letter *A: ping-beep, ping-beep*. To one side of the *A* band was the *I* band: *ping-ping, ping-ping*. To the other side was the *M* band: *beep-beep, beep-beep*. As long as one's earphones played the comforting song of the *A* band one moved in a straight line which, if extended, would end at the dome. If, instead, one heard the distressing sound of either the *I* or *M* bands it was a simple matter to move right or left and find the *A* band and the route to safety.

Harding moved on into the wind, stopping now and then to peer around. When finally he found the *A* band he turned reflexively to his right and followed it. The seductive hissing of the wind-blown sand against his suit filled his mind with

images: now a kitchen faucet running, splashing water into an empty sink; now a panful of bacon, savory and sizzling. Most often it was the sea—sometimes pulling out over the rocks at Moss Beach as he and Carol dashed among the tidepools searching for starfish; sometimes smashing against the jetty at Long Beach as he leaned against a huge rock and watched Carol move gracefully along the breakwater; sometimes surging sluggishly over the white sands below Pescadero, where Carol lay waiting for him on a blanket before a guttering campfire. Harding often fished the surf and cooked his catch over such a private campfire. Carol started and tended the blaze while he fished. She would wait for him, a little higher up the beach, out of the wind. He could hear snatches of a rhythmic song from her portable radio, so she couldn't be too far away. Just up ahead, probably—just beyond . . .

WITH profound surprise Harding realized that he had stopped walking and was standing still, searching helplessly for Carol. "Idiot!" he raged. "You goddam idiot!" He plunged ahead angrily, cursing himself for a fool. Each step he took jarred his arm painfully and he grunted in response. He devoted his consciousness singlemindedly to the sequence of step, grunt, step, grunt. He heard the homer distantly, responded to its varied song reflexively, by tropism. Once more he stopped and looked about, but could see nothing. The scouring sand had finished the job the blood had started. His faceplate was dimly translucent, like a washroom window. He sighed and moved on.

Step, grunt, step, grunt. Occasionally his awareness rose a bit and he mused about the time remaining to him. That he was running low on oxygen was obvious—his breathing was deeper than it should have been. He was taking one great gasp with each step. Concentration on anything but the sequence of step and grunt, however, was more than he could handle—concern about his air remained too distant to coalesce into fear.

A dark, bewildering cloud of uncertainty settled on his mind. Where was he going? He heard a noise and, devoting his attention to it, recognized it with pride as the homer. He stepped forward and the sound of the *A* band abruptly changed to that of the *M* band. Frowning, confused, he turned to his right and took another step and found himself almost immediately listening to the *ping-ping* of the *I* band. Panting heavily, he sought and found the *A* band again and, by moving his head from side to side, defined its width as about a half-meter. A half-meter—that meant he was about a hundred meters from the dome. Sucking deeply of the foul air in his suit, he lined him-

self up carefully with the *A* band and stepped forward. *Only a hundred meters,* he thought. Slowly, punctuated by great gasps, a smile of congratulation began to spread across his face—and froze in a horrified grimace before it came to full flower.

The homer fell silent.

"Hey!" He panted, listening. There was no sound save the mirthless chuckle of the sand against his suit. "Damn it," he yelled weakly, "don't—don't quit now!" The sand thrummed in his ears. He resisted an urge to run and spoke more calmly to himself. "Now wait a minute—just—wait. It's only a hundred meters away—not more than a hundred meters." He started to turn around, but thought better of it. If his footprints were still there he couldn't see to line up on them. Squaring his shoulders, he stepped deliberately ahead, counting steps.

Two steps to the meter in the bulky suit—two hundred steps to a hundred meters. Better make it two-twenty, he thought, remembering the sand that robbed him of strength and his steps of distance. He tried counting aloud, but the effort of breathing soon became too great. He was breathing twice to each step, two great, rasping gasps that made his ribs and belly ache. He plodded groggily ahead, trying desperately not to lose count.

A shock of pain roused him and he realized he had fallen. Vaguely he knew that was bad; knew that for some reason he didn't want to fall, knew that he had to stay on his feet. He was going somewhere, but the pounding of the surf in his ears made it difficult to remember where. He struggled slowly and grimly to his feet and his head cleared somewhat. "God—damn—sand—" he panted, moving forward. Something tangled his foot and he fell heavily, a bright shaft of pain knifing through his dimming consciousness. She wouldn't let him sleep. That was her one bad habit—she would not let him sleep. Whenever he wanted to sleep she would wake him—pinch him and wake him. He put out his arm to fend her off and touched something rigid, angular. Confused, he ran his hand over it and a dim realization bubbled into being.

"The—the tower—" he croaked. His field of view was a swimming red haze. Eyes forced wide open as if to penetrate the mistiness before him by sheer willpower, he climbed to his feet and felt his way along the tower. At the end of it he came to something solid, looming darkly before him. He felt his way along it, unseeing, searching for something. He knew he should remember this object, this thing before him, and was impatient with himself for not recognizing it. It came to him slowly that it was a bluff above the beach and that Carol was at the

top, waiting . . . he had to find . . . there was a path . . .

He collided with something jutting from the surface before him and accidentally found the oversized handle to the outer lock. That was it! She wasn't at the top—she was inside! He pulled the handle and fell heavily to the floor. The lock closed automatically behind him and he crawled forward, conscious only of the shattering pain in his arm and of Carol. He pawed clumsily at the handle to the inner lock. Concepts of purging, of pressure equalization slipped sluggishly through his mind, signifying nothing. Something had to happen before he could get in to Carol, but he couldn't figure out what it was. While he puzzled over it the inner lock sprang open and he slumped inside.

Vaughn? Is that you?

"Carol—can't—can't breathe—"

Oh, Vaughn, you're so silly. Of course you can't breathe. You have your helmet on.

"—can't—"

Vaughn, sweetheart, take off your helmet. Here, I'll help you—we have to take it off before you can breathe.

"Helmet—" gasped Harding. Fingers fumbled at the catches—whose? Was Carol . . . she . . .

He tore off the helmet. His chest heaved violently and the air caught in his throat. His wide-eyed, surprised gaze fastened not on Carol, but on a ragged gash in the dome, through which protruded one twisted leg of the fallen tower. For a tiny moment that merged imperceptibly with eternity, Harding felt horribly cheated.

The sand, drifting through the gash, piled up slowly and gusted about the dome. A few grains settled, unfelt, on Harding's glassy, staring eyes.

Outside, the wind slackened.

We feel that if there is a single criterion by which to define life it can only be the phenomenon of existence. A fly is alive and, after a fashion, aware. But does the fly recognize as living the horse he bites? For that matter, does the horse in crushing the fly recognize the fly as living? Or is the horse simply responding reflexively to a 'non-living' irritant? Our views of the phenomenon of life, gentlemen, are as those of the fly. We must broaden those views or, like the fly, we shall be doomed to live out our existence in a universe at whose mercy we shall be through our failure to understand.

—Gunnar Narsson, Chairman, Society for the Investigation of Extraterrestrial Life, in an address to the 250th anniversary assembly of that organization.
Old Cavern, Luna
25 January 2235 ★

Here's what Robert S. Richardson has been good enough to tell this department about himself:

Since earliest childhood, I was interested both in writing and in astronomy, a double obsession that continued into college. Unfortunately, I regarded neither profession as likely to produce what is known as a "good" living. I was absolutely right.

When I tell people I was born in Kokomo, Indiana, they always give me that "what-a-bum-joke" look. But people *are* born in Kokomo. Soon after my birth, my parents moved to the Pacific coast. They never went back.

My wife won't let me disclose my age, since that would give a clue to her age. I will say, however, that I have a distinct recollection of seeing Halley's Comet when it last returned in the spring of 1910.

With some misgivings, I decided finally on a career in astronomy, toward which end I earned my Ph.D degree during seven years at UCLA and UC in Berkeley. Main achievement at UCLA was being the first man to break 10 seconds in the 100-yard dash. Happiest recollection is the three weeks spent in UCLA hospital. Have no happy recollections of UC.

I began writing, chiefly for monetary reasons, and had the misfortune to sell my first article to the old *Los Angeles Times* Sunday Magazine. I say "misfortune" because the sale gave me the idea that writing was an easy source of income. I was speedily disillusioned.

Immediately after receiving that Ph.D degree, I joined the staff of Mount Wilson Observatory near Pasadena, specializing in the sun and planets. (This observatory, with its 200-inch telescope on Mt. Palomar, is now operated jointly with Caltech as the Hale Observatory.) After some 25 years of research there and elsewhere, I joined Griffith Observatory in Los Angeles as Associate Director. There, the urge to write became stronger in me than ever. Ultimately I decided to follow Nietzsche's dictum to "live dangerously" and voluntarily resigned to become a freelance writer at an age when most men are gloomily contemplating retirement. I have never regretted my decision.

I have authored scores of articles and books on astronomy, besides short stories under the name Philip Latham.

The idea for the GALAXY article in this issue came from dissatisfaction with the usual explanations for the Star of Bethlehem, the best being that the phenomenon was a nova. It occurred to me that it might be, rather, a *recurrent* nova. Next question: is there a known recurrent nova which precession would put over the zenith of Bethlehem at the time of Christ? Investigation showed that the "blaze" star, *T Coronae Borealis*, fulfilled all conditions.

Fortunately I was able to get the cooperation of Father Ronald E. Royer, a young priest at nearby St. Frances of Rome Church. Besides teaching, Father Royer has had a longtime interest in astronomy and boasts an excellent observatory with a telescope he made himself.

My wife Marjorie and I live in the foothills below Mount Wilson in sight of the buildings where I used to observe the stars. We have a daughter, Rae—an art student at UCLA—and one grandchild, Jima, age 5, apparently concentrating on avant-garde art in kindergarten.



Robert S. Richardson



GALAXY BOOKSHELF

Theodore Sturgeon

THEY come along far too seldom—these treasure boxes of carefully selected stories, studiously and carefully compiled, interleaved with commentary and analysis. Damon Knight used to do a lot of this; one wishes he would resume it. Willis McNelly is good at it, and Thomas Disch's *The Ruins of Earth*, though it lacks the internal commentaries, is a shining example. Now we have Dr. Clareson's *A Spectrum of Worlds*, a gem-dealer's display, a laboratory analyst's report and a kind of love-letter to the whole field, its origins, its nature and its significance. (I was going to write "purpose," but wouldn't *that* open a sack of snakes?) Dr. Clareson is a professor at Wooster in Ohio, and is the mainspring of the Science Fiction Research Association—which seems to be developing into a communications center for all facets of sf—and of its journal, *Extrapolation*. He edited a previous critical anthology (*SF: The Other Side of Realism*) and now gives us *A Spectrum of Worlds*. It's a survey and study of various brands of sf from Henry Fielding to Anthony Burgess (in his introduction) and from Bierce (1893) to Silverberg (1969) in the table of contents. It's a fine overview of the field for newcomer and old hand alike. I'm especially grateful for Jack London's *The Red One*, which I happen not to have read before, and O,God, couldn't that man write! Some of the stories are literary atrocities, but are there for good reason as the editor clearly points out. Here and there one might be abraded by Dr. C.'s schoolmasterish instructions as to

what to think of a story, and both the Aldiss specimen and Dr. Clareson's comments on it remind me of the remark made by an obscurantist poet I just invented: "If you understand what I just said you have missed the point." (I honor, admire, and sometimes envy Brian Aldiss, but every once in a while I wish he would go back to 1957 and his little superman and start over. This is one of the times. Other times I bite my tongue for saying such things.) Still, I heartily recommend the book.

"Can't you understand that romanticism is no more an enemy of science than mysticism is? In fact, romanticism and science are good for one another. The scientist keeps the romantic honest and the romantic keeps the scientist human." Thus speaks Amanda, in *Another Roadside Attraction*, and if you want my feelings about sf, there they are. Ah, Amanda. . . How this unique, extraordinary, provocative beauty of a book has escaped really wide attention is, to me, a major mystery. I spend a great deal of time with books—never in my life can I recall spending it in a condition of such expansive delight as I have done with this one. Tom Robbins is one of the most vivid imagists, with one of the most outrageous heads walking the world today. And if that sounds as if he is walking on his head, so be it—he certainly is walking on and in mine. Maybe I have no business even mentioning this book on these pages; perhaps you will feel conned because it isn't hard-line sf. Well, it's got scientists and a think-tank and a high-atmosphere balloon experiment with cosmic rays and solar energy. It also has literature's most improbable kidnaping and a group of the most unusual characters and situations you will ever encounter. Forget categories and fall into this book and enjoy. Enjoy. If you have a sense-of-wonder, this very sensuous book will fulfill it.

LLOYD BIGGLE, JR.'S agent once transferred to him an editor's request for "a Bigglish kind of story." To judge by the collection *The Metallic Muse*, this means a readable, sometimes amusing, sometimes poignant story with a straight-line, unconvoluted plot. The yarns are often stitched with music—the author is a trained musician—and are usually constructed around an idea or solution withheld until the punchline. A valid technique, except where the reader gets to the punchline first. The one I liked best is *Orphan of the Void*. A pleasing package.

Biggle as novelist heads my

partial list of DAW books for this strophe. DAW is making it difficult for a reviewer to devote his space to anything else. Issuing four titles a month—anthologies, collections, original novels, all with the claim to first paperback—or even first book—publication, makes it high tide time. Anyway: *The World Menders* annoys me because of its virtues. Biggle works with one of the most provocative ideas ever to come up the pike: the definition of humanity itself. (This was superbly dealt with in a fine French novel by Vercors, called *You Shall Know Them*, long out of print. If you can lay hands on a copy, do.) Biggle has set up an engrossing problem in civilization and culture on the planet Branoff IV, where the more or less urban Rascz are served by the Olz, who do all the dirty work. Most Rascz have never seen an Ol; some seem never to have heard of them. The task of the secret Earth expedition is to bring democracy to Branoff—rather, to cause the inhabitants to bring democracy to themselves—but how do you do either when the Olz seem to have no self-respect, no sense of group identity, and the Rascz have no reason to believe that they should or even might? My irritation stems from the fact that nothing in this plot would work unless the behavior of each of its components was precisely as stated—and I don't think it would be. Living things—cultures or individuals—are only statistically precise in their behavior, and the presence of one or two mildly wild talents anywhere in either group would make the whole thing impossible. Irritation the second deals with the protagonist and his relationship with the girl Liano, an Earth colleague—truly a lovely and compelling creation. Biggle did not develop this facet of his story. Professionally, she had answers for his hero's problems, plenty of them, and if the man ever even asked for them, reader knoweth not. Finally, the axiom, the solemn credo of the whole book, is that democracy is good for all species on all planets at all times in all places. This thesis, viewed objectively even by as case-hardened a democracy-lover as myself, is as foolish as those Russian sf first-contact stories that judge the worth, and even decide the life or death, of alien cultures by whether or not they are socialist. All these seem like carps (a more highly evolved life form than the recidivistic sturgeon) and they have used up a lot of my space here—but what I want to get across is that they spring from the book's virtues, and are sparked by a writer who is a comer.

BRIEFLY then: *Genius Unlimited* springs from the literary loins of Hawk Carse and Doc Savage, complete with dead stops for lectures on gimmicks and this fall's fashions in sexual accessories. It's a book to toss to hard-core of addicts who mourn that the good old days are forever gone. If this is your cookie, eat it and have fun. *The Year's Best Horror Stories* explodes one with nostalgia for the long-mourned *Weird Tales*. Richard Davis has done a fine job of collecting horrors from a wide spectrum of sources here and in England and even one from the Spanish; the contents are over 80% excellent. Some, like the Spanish entry by Eddy Bertin, are replanting of the familiar Gothic fields. Some, like the Matheson, are the skilled nightmares that start with shock and run all the way to ghastly, one or two, like Celia Fremlin's *A Quiet Game*, are outstandingly original. A worthy package. Dean Koontz, in *A Darkness in my Soul*, seems to have had his novelistic womb badly frightened by Harlan Ellison, 'long about the second trimester. Into a fairly rigid near-future history (and fairly frightening, friends—could be he's not far wrong) he injects a concept that completely fragments his flywheel. It takes a lot of unsettling to make me mix metaphors that much. How is it that the more stupendous, colossal, cosmic an sf novel is, the more trivial it seems to be in retrospect? I think it's because that it-could-happen-to-ME element is abandoned and you can't believe it any more, even for fun. Koontz would do well not to try stuff like this until he grows up to be Robert Silverberg. Suzette Elgin's *At the Seventh Level* owes more to the richness and delicacy of its prose than to its structure, which again hangs on a single, not-too-obscure gimmick which, if revealed early, would have made the book unnecessary. However, she writes so beautifully that she would be worth reading even if she had far less to say than she has here. How she achieves her complex, stained-glass effects without approaching the precious or the "purple" fills me with awe. *We Can Build You* proves for all time that: 1) Philip K. Dick is overwhelmingly competent and capable and might—probably will—produce a major novel and that: 2) this isn't it. I base the first on his handling of his characters, who are consistent and warmly recognizable even in their stubborn irrationalities, on the boldness and provocation of his themes and his side remarks, on the richness of his auctorial background and the sparkles of laughter finger-flicked all over his work. I base the second on

his willingness to pursue some collateral and fascinating line at the expense—and even the abandonment—of his central theme, which was (or so in the book he told me) the manufacture of exact simulacra of any human being and the impact of this development on humanity. The pursuit, in and out of the fringes of insanity, of an obsessive love affair had me laughing and crying, but Dick and I both were conned, weakwilled as dieters gobbling hot hot fudge sundaes, into this delight instead of going about our business.

Jeff Sutton's novel *The Mind-blocked Man* is yet again one of those concealed-gimmick stories, in which one shrewd early guess will destroy the book for the reader. He awakes. He doesn't recognize what he sees in the mirror. He doesn't know who he is. He has fleeting memories he can't place. Someone's out to get him. Immense resources are brought to bear on him and he is trapped a lot, escapes a lot. Ultimately the fate of worlds depends on his actions and decisions. I have a stack of this stuff *this* high in my office and I don't know what to do with it, since I won't burn books. End listings of DAW for now. I think we all owe the tireless Mr. Wollheim a debt of gratitude.

DAVID GERROLD'S *When Harlie Was One* is a conscious-computer story with a very nicely evolved plot which I defy you to anticipate. Although his evil industrialists tend a bit to simplism and Central Castings, his main characters are warmly human and dimensional. His computer, Harlie is both understandable and likable as a personality and, in its coldblooded objectivity, terrifying. Pay attention to Harlie. He gives us more than a glimpse of the potency of the computer and how it will affect us all even if it doesn't achieve consciousness. The book carries a good freight of social and psychological insight.

I've just space to announce that Walt Lee's monumental *Reference Guide to Fantastic Films,* Volume 1,A-F, is now in print. It gives you every available bit of information ("available" means researchable by Lee, which means thorough) on fantastic films, their first US release titles, origins, classification (comedy, historical, surreal, etc.), length, production credits. There are thousands of entries—some 190 pages of small print in a big (8½ X 11) well-bound and exceedingly handsome paperback—sprinkled throughout with historic stills and loaded with information. For specifics contact Walt Lee at Box 66723, Los Angeles, Calif. ★

(Continued from page 6)

needs no excuse for being. Adventure, excitement, the old "sense of wonder" need no rationalization. Even pornography need not be burdened with redeeming social value if it succeeds in what it sets out to do—titillate. Ban it when it is boring.

We are in another Age of Reason. If something appeals to our sense of beauty and not to our intellect we mistrust it. If it gives us pleasure without purpose we fear it. And if it somehow manages to hang on despite these obstacles we feel obliged at least to pump it full of "meaning." Give it a cold, concrete handle.

Let's keep a touch of poetry in this prosaic Age of Reason.

Brent Higginbotham
Brockton, Massachusetts

Directions:

Robert F. Young's "The Years," *printed in your September issue, was cute and I enjoyed it. But one thing about it bothered me—it was a time-travel story. To me, time travel isn't science fiction. Let me explain why. For me science fiction deals with the future or outer space or science—in other words, that which is unknown but possible. That which is not possible or at least believable as possible is not science fiction but fantasy.*

Time travel does not fit the sf definition because it is neither possible nor believable. The entire concept is built upon an absurdity—a belief that since we remember an event that event always exists. In other words, if I once swing a baseball bat, then somehow, somewhere, I am always swinging that baseball bat. In addition, there is supposed to be an infinite number of me always doing all the things I have ever done—somewhere back in time. For me that is absurd and without basis in credibility. I believe the past existed—but does not exist. Our memories and ideas of it exist, but even those can become distorted. If a man dies and if, despite all available evidence of his dissolution and decomposition you believe that he continues to live unchanged—then your belief is magical and childish.

Time travel rests upon the inane assumption of the unchangeability of events, people and objects. If a writer can present a basis for the assumption that things do not change, he can make time travel into sf. If not, he deals in fantasy. Fantasy can, of course, be terrific.

Mark Terry
Chicago, Illinois

Directions:

Science fiction is finally being discovered for what it is—literature for the thinking man.

Hugo Greensback was the father of the term "science fiction." He considered it to be anything that takes place in the future that could one day become true. Almost all the well-known authors would be left out in the cold by this definition.

With science fiction being taught in some colleges as a literature that deals with today (the Air Force Academy is a good example), we can be sure that the change is for the better. Only time will show the full significance of the change, but I think most science fiction readers will be pleased with the final outcome.

Raymond Reece
Fort Wayne, Indiana

GALAXY/IF S-F MART

Galaxy

235 East 45 Street
New York, N.Y. 10017

if

50¢ per word (including name and address). 10-word minimum. Payment with order.

ASTROLOGY

COMPLETE HOROSCOPES done by Professional Psychic. Send Name, Birthdate, Time, Location and $15.00. ASTARTE, 3424 Central, Cicero, Illinois 60650.

BOOKS AND MAGAZINES

WANTED: Scientifiction, fantasy, weird books, pulp magazines. Arkham House, Fantasy Press, Lovecraft. GERRY DE LA REE, Cedarwood, Saddle River, N.J. 07458.

FANTASY COLLECTOR; monthly magazine where YOU can trade, sell, buy SF items. Free Sample. CAZ, Evergreen, CO 80439.

Philosophy: The Nature of Form in Process: Information processing from Plato to present (hardcover). 111 pp., $5.00, postage included. *Writers:* Publishing short-short SF with impact. Also, original, American or scientific, philosophy books. THE PORTER LIBRARY, Dept-2, P.O. Box 1564, Burbank CA 91505.

SELLING Comic Books, Pulps (SHADOW, AMAZING, SPIDER, etc.), Magazines, Radio Premiums, etc. From 1900—1972. Catalogue 50¢. ROGOFSKY, Box G1102, Flushing, New York 11354.

ADULT S-F FAN MAGAZINE. Praised by Top s-f authors. Shocking fiction, uncensored opinions, outrageous reviews. $1, per issue. RICHARD GEIS, POB 11408, Portland, OR 97211.

SPECIALISTS: Science Fiction, Fantasy, Weird Fiction Books—Pocketbooks. Lists Issued. STEPHEN'S BOOK SERVICE, P.O. Box 321, Kings Park, L.I., N.Y. 11754.

FREE copy SIGNS Magazine. BAGBY, Box 1303, Longview, Washington 98632.

AMAZING COLLECTION, ILLUSTRATED, 472 pp. (See GALAXY review November). Egyptian trance techniques, quantum and mind, how you use lunar resonance, much more. Only $10 postpaid. CONSCIOUSNESS EDITORS, 844 San Ysidro Lane, Santa Barbara, CA 93108.

EDUCATION

EARN COLLEGE DEGREES at home. Many subjects. Florida State Christian College, Post Office Box 1674, Fort Lauderdale, Florida 33302.

GAMES AND PUZZLES

4000 A.D.!!! WORLD'S FIRST INTERSTELLAR CONFLICT GAME!!! American Games Authority Sid Sackson (Columnist in "Strategy and Tactics" Magazine) calls 4000 A.D. "A Beautifully Unique Departure in War Games". For Free Catalogue of Adult Games and Challenging Puzzles write to: HOUSE OF GAMES CORPORATION, Box 316, Don Mills, Ontario, Canada.

MISCELLANEOUS

SLEEP-LEARNING—HYPNOTISM! Strange catalog free. Autosuggestion, Box 24-GY, Olympia, Washington 98501.

SORADAKI—the Gracious Art of Japanese Incense Burning. 12 Cones—Assorted Fragrances—plus Ceramic Stand . . . $1.50 Postpaid. THE FRANKLIN SHOP, FDR Station 1113, Dept. GXF1, New York, N.Y. 10022.

DREAMS—LEARN THEIR MYSTERIOUS INNER MEANINGS! 110 Page Book, "How to Understand Your Dreams". Send $2.00. RUSSELL ENTERPRISES, 5336 Denny Drive, College Park, Georgia 30349.

FORGED from the FUSION of Science, Religion and Philosophy: THE ORACLE. Free Information. P.O. Box 491, Stanwood, Washington 98292.

WE NEED CONTRIBUTIONS so our Album can be recorded and released. DOUBLETRAK, P.O. Box 2235, Boulder, Colorado 80302.

VIRGIL FINLEY REPRODUCTIONS Available, Large Sizes, Quality Printing. Send stamp for information. DAN COLEMAN, Kenoza Lake, N.Y. 12750.

HELP RESURRECT PYTHAGOREANS! Send Return Stamped Envelope. Schulz, Box 532, Absecon, N.J. 08201.

MAIL ORDER ACTION

LOW COST, HIGH RESPONSE advertising now available in HOME OWNER'S MARKET, the Classified section of Family HANDYMAN. High-income, active audience of 2,000,000 readers. Broad range of classifications. Regular and Display. Order now for fast results. Frank Brennan, 235 E. 45, New York, N.Y. 10017 (212) MU3-3000.

A MERRY YULE AND MANY GOODIES TO COME IN 1973!

BALLANTINE BOOKS



The very best reading in or out of this world

3 FOR 10¢

with trial membership in The Science Fiction Book Club

Choose any 3 books, even these 3 science fiction greats: THE HUGO WINNERS, Volume I & II—23 gripping short stories, each a recipient of a Hugo, the field's most coveted award. A giant, handsome, 864-page compendium.

DUNE by Frank Herbert—Perhaps one of the most important views of tomorrow ever written. Winner of both the famous Hugo *and* Nebula awards, challenging until the very last page, DUNE will never let you go.

THE GODS THEMSELVES—Isaac Asimov's first novel in 15 years, an event well worth waiting for. Reeling ahead to the year 3000, it's a sensational tale by one of the first masters in the field.

What a way to get acquainted! The three books represent a $27.35 value for just 10¢.

It's the most extraordinary sample of science fiction ever offered in one package with an even more extraordinary trial offer.



Here's how it works:
Choose *any* 3 books on this page for 10¢, including if you wish, the big 3 shown above. That's one thin dime (to help cover shipping). Then, if you're not absolutely fascinated when the books come, return them and we won't trouble you again.

If you are intrigued, you're on your way to many more delights in the Science Fiction Book Club. Future books, all hard cover, will cost only $1.49 each (plus shipping and handling) and you need buy only four in the coming year. Our colorful bulletin will keep you informed about superb new books. Fair enough? Don't even send us the dime now. We'll bill you later.

Take advantage of us. There'll never be a better time.

SCIENCE FICTION BOOK CLUB 34-S119

Dept. CL-070, Garden City, N.Y. 11530

Please accept my application for membership in the Science Fiction Book Club and send me the 3 books whose numbers I have written in the boxes below. Bill me just 10¢ (to help cover shipping) for all 3. About every 4 weeks, send me the club's bulletin, "Things to Come," describing the 2 coming Selections and a variety of Alternate choices. If I wish to receive both Selections, I need do nothing, they will be shipped to me automatically. Whenever I don't want 1 of the 2 Selections or prefer an Alternate, or no book at all, I will notify you by the date specified by returning the convenient form always provided.

I need take only 4 Selections or Alternates during the coming year, and may resign any time thereafter. Most books are only $1.49, plus a modest charge for shipping and handling. Occasionally, extra-value Selections are slightly higher.

NO-RISK GUARANTEE: If not delighted, I may return the entire introductory package within 10 days. Membership will be cancelled. I owe nothing.

[] [] []

Mr.
Mrs
Miss Please Print

Address _____

City _____

State _____ Zip _____

8532. **The Hugo Winners**, Vol. I & II. Giant 2-in-1 volume of 23 award-winning stories. 1955 to 1970. Asimov introduces each. Pub. ed. $15.45

2790. **Science Fiction Hall of Fame I.** 26 "winners," chosen by Sci-Fi Writers of America. Ed. Robert Silverberg. Pub. ed. $7.95

1321. **The 1972 Annual World's Best Science Fiction,** ed. by Donald A. Wollheim. Volume IV contains 14 gems from Clarke, Sturgeon, and more. Spec. Ed.

6171. **The Dancer From Atlantis** by Poul Anderson. Four people—from different ages and cultures—are catapulted by a time machine back to 1400 B.C. Fascinating mixture of history, myth and imagination. Spec. Ed.

6270. **Dune** by Frank Herbert. Celebrated winner of Hugo and Nebula. Gripping tale of family exiled from their private planet to another, a barren desert. Pub. ed. $5.95

6403. **A Science Fiction Argosy** ed. by Damon Knight. Over 800 pages. 24 stories by Hugo & Nebula winners such as Asimov, Aldiss. Includes 2 novels. Pub. ed. $9.95

0448. **Mutant 59: The Plastic Eaters** by Kit Pedler and Gerry Davis. New bacteria goes berserk causing London to melt. Pub. ed. $5.95

6577. **The Sheep Look Up** by John Brunner. The celebrated author of **Stand On Zanzibar** presents a multi-media mind-bender that chronicles the collapse of civilization. Pub. ed. $6.95

6023. **The Gods Themselves** by Isaac Asimov. The master's first novel in 15 years ...and worth the wait for a fabulous trip to the year 3000. Pub. ed. $5.95

6130. **A Time of Changes** by Robert Silverberg. Brilliant novel of strange planet where human beings must despise themselves. 1971 Nebula award winner. Spec. Ed.

8037. **Again, Dangerous Visions,** Harlan Ellison, ed. Forty-six pieces, short stories & novels. **Explicit scenes and language may be offensive to some.** Pub. ed. $12.95

6742. **The Early Asimov** by Isaac Asimov. 27 previously uncollected early stories by the most famous name in science fiction. Pub. ed. $10.00

Book Club editions are sometimes reduced in size, but they are all full-length, hard-cover books you will be proud to add to your permanent library. Members accepted in U.S.A. and Canada only. Canadian members will be serviced from Toronto. Offer slightly different in Canada.